SYLLABUS

Class – B.Com. I Year

Subject – Desktop Publishing

UNIT – I	Importance and Advantages of DTP, DTP Software and Hardware, Commercial DTP Packages, Page Layout programs, Introduction to Word Processing, Commercial DTP Packages, Difference between DTP Software and word Processing.
UNIT – II	Types of Graphics, Uses of Computer Graphics Introduction to Graphics Programs, Font and Typeface, Types of Fonts, Creation of Fonts (Photographer), Anatomy of Typefaces, Printers, Types of Printers used in DTP, Plotter, Scanner.
UNIT – III	History and Versions of PageMaker, Creating a New Page, Document Setup Dialog Box, Paper size, Page Orientation, Margins, Different Methods of Placing text and graphics in a document, master Page, Story Editor, Formatting of Text, Indent, Leading, Hyphenation, Spelling Check, Creating Index, Text Wrap, Position (Superscript/Subscript), Control Palette.
UNIT – IV	History of Multimedia Elements, Text, Images, Sound, Animation and Video, Text, concept of Plain Text and Formatted Text, RTF& HTML Text, Image, Importance of Graphics in Multimedia, Image Capturing Methods, Scanner, Digital Camera, Sound0 Sound and its effect in Multimedia, Analog and Digital sound, Animation, Basics, Principles and use of Animation, video, Basics of Video, Analog and Digital Video.
UNIT – V	Features Of Multimedia, Overview of Multimedia, Multimedia Software Tools, Multimedia Authoring- Production and Presentation, Graphics File Formats, MIDI-Overviews, Concepts, Structure of MIDI, MIDI Devices, MIDI Messages.

UNIT I

1.1   Introduction to Desktop Publishing

Desktop Publishing (DTP) is the creation of electronic forms of information documents using page layout skills on a personal computer primarily for print. Such as documents, presentations, brochures, books, or even website content using computer programs. Desktop publishing can create digital pages as well as virtual pages which are transferred to physically printed pages.
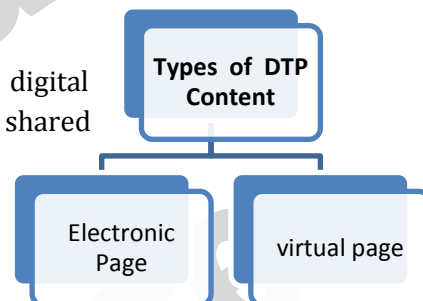
DTP has evolved to be an important component of creating and disseminating information with various tasks that are generally performed independently at printing presses such as layouts, typesetting, graphic design, etc. This technology allows individuals, businesses, and other organizations to self-publish a wide range of printed matter.

1.2   Types of DTP Content

The content created by DTP software can be broadly classified into two categories –

- Electronic Pages
- Virtual Pages

Electronic pages commonly refer to websites, manuals, eBooks, digital archives, presentations, etc. which are normally not printed but are shared digitally. Virtual pages on the other hand are electronic pages created in the DTP software which are eventually published as printed pages. Virtual pages allow the author to visualize exactly how the printed page will look and can help in easy editing. The process is called WYSIWYG which stands for, 'What You See Is What You Get'. This means all the changes and formatting that are made will be exactly replicated in print.

There is software to cater to every need right from free software to professional grade subscription based software. Although InDesign has now taken over the DTP market, we will have some popular DTP software other than InDesign that are also quite popular with the publishers.

1.3   Desktop Publishing Software for Windows

The following is a list of major desktop publishing software. A wide range of related software tools exist in this field, including many plug-ins and tools related to the applications listed below.

• Adobe InDesign	• InPage	• QuarkXPress
• Adobe PageMaker	• PagePlus	• QuickSilver
• Corel Draw	• PageStream	• Scenari
• Corel Ventura	• Prince XML, by YesLogic	• Scribus
• FrameMaker		• Xara Designer Pro X

- Xara Page & Layout   Designer

Desktop Publishing Software for Mac

- Adobe InDesign
- Adobe PageMaker
- Corel Ventura
- FlipB
- iCalamus
- IHDP Software
- iStudio Publisher
- Pages
- Scribus
- Print Shop

Online Desktop Publishing Software

- Canva
- Fatpaint
- Lucidpress

1.4   Hardware of DTP

Personal Computer - It could be that for your application a Mac or Linux box will work fine Select a PC that will fit inside Ideally the PC will have:

- A recent model CPU such as Pentium or Celeron, say 2Ghz or faster
- 2GB RAM
- Windows XP (Pro or Home) Vista has not yet been tested but should be fine
- CDROM drive
- DVI video adapter with at least 32MB RAM and supports 1280x1024 resolution, (VGA OK) - consider ordering a second display adapter if you may be running two screens off of this PC

Monitor - The monitor must have a native resolution of 1280 x 1024 (SXGA). LED designed for this resolution only. "Native" means that at that resolution images fill the entire screen and look the sharpest and best that the monitor can display. Monitor will need a high-resolution 19-inch monitor. When doing desktop publishing and design work, laying out pages on most standard 12-inch and 13-inch screens can be tiring and difficult. The monitor and associated graphics card should be at the IBM-standard video-graphics array (VGA) level or better.

Secondary storage – It is essential for DTP work. Desktop publishing files tend to get very large, and you will soon accumulate many active files on the computer's hard disk. A minimum of 500 megabytes of hard disk capacity is recommended. Hard drives with 850 megabytes to 2 gigabytes are even better.

Mouse or trackball - will also need a mouse or trackball pointing device to move the cursor position on the monitor screen.

Printer• - Although the dot matrix printer is inexpensive and capable of printing graphics and letter quality text, it is insufficient for many DTP applications. A laser printer is the better choice when it comes to preparing quality text and graphics.

Scanner - With desktop publishing systems, you will naturally want a desktop scanner to capture photographs, art work, clippings, and other forms of art work.

1.5   Software requirement for DTP

Word Processing Software

Word processing software is used to manipulate a text document, such as a resume or a report. You typically enter text by typing, and the software provides tools for copying, deleting and various types of formatting. Some of the functions of word processing software include:

- Creating, editing, saving and printing documents.
- Copying, pasting, moving and deleting text within a document.
- Formatting text, such as font type, bolding, underlining or italicizing.
- Creating and editing tables.
- Inserting elements from other software, such as illustrations or photographs.
- Correcting spelling and grammar.

Software which manages data in the computer. This covers the wide range of packages available for the computer. Examples of package include: —

- Word processing
- Spreadsheet and charting
- Database management
- Painting
- Drawing (including computer-aided design)
- Business graphics.

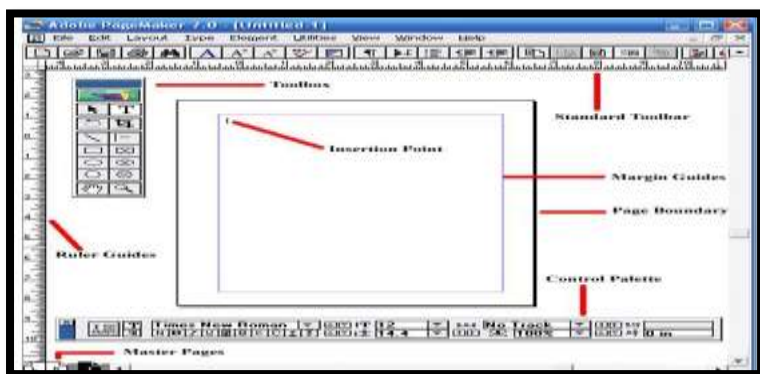## 1.6   Commercial DTP Software Packages and their uses with suitable example

DTP (Desktop Publishing):- Desktop publishing (DTP) is a comparatively recent concept which captured the imagination of a large number of microcomputer users. DTP is generally associated with a term known as WYSIWYG which means What You See Is What You Get approach. The page itself can be seen on the screen as it will appear in print.

A wide range of typefaces, styles and fonts that allow image to be sized in various ways. There are number of DTP software available in the market.

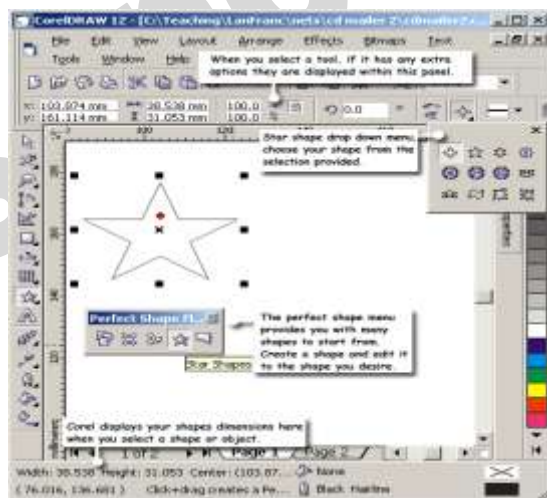|		
• Adobe PageMaker,	• Corel Ventura,	• IStudio Publisher,
• Coral Draw,	• AdobeFrame Maker	• Scribus.
• Adobe Photoshop,	• Microsoft Publisher,	
• Adobe Indesign,	• QuarkXPress,	

Adobe PageMaker: - Adobe PageMaker is a desktop publishing program. These make by ALDUS CORPORATION in 1985. Initially for the then7-new Apple Macintosh and in 1987 for PCs running Windows 1.0.PageMaker was awarded an SPA Excellence in Software Award for Best New Use of a Computer in 1986.PageMaker relies on Adobe Systems' PostScript page description language, and in 1994 Adobe Systems acquired Aldus and PageMaker. As an application relying on a graphical user interface, PageMaker helped to popularize the Macintosh platform and the Windows environment. Versions of the Adobe PageMaker:-

- PageMaker 1.1:- Running on the window 1.0 (1985).
- PageMaker 3.0:- Running on the window 2.0 (1988).
- PageMaker 4.0, 5.0, 6.0 and 6.5:- Running on the window between(1988 to 2000).
- PageMaker 7.0:- Running on window XP (2001).

2. Coral Draw: - Corel DRAW is a vector graphics editor developed and marketed by Corel Corporation of Ottawa, Canada. It is also the name of Corel's Graphics Suite, which bundles CorelDraw with a bitmap image editor, Corel Photo Paint, and other graphics-related programs (see below). Versions of the Coral Draw:-
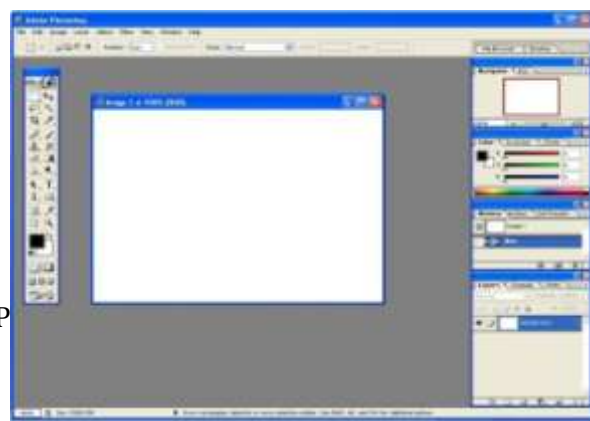
- Coral Draw 1:- Running on window 2.1 (1989).
- Coral Draw 2:- Running on window 3.0 (1991).
- Coral Draw 3:- Running on window 3.1 (1992).
- Coral Draw 4:- Running on window 3.1 (1993).
- Coral Draw 5:- Running on window 3.1 (1994).
- Coral Draw 6:- Running on window 95 (1995).
- Coral Draw 7, 8, 9, 10, 11, and 12:- Running on window 95, window 98, window 2000, window XP, window anti (1996-2004).
- Coral Draw 16:- Running on window XP, window Vista, window 7 (March 2012).

Adobe Photoshop: - Adobe Photoshop is a DTP Software. In the market, 2 available addition of Adobe Photoshop are:

- Adobe Photoshop
- Adobe Photoshop Extended.

Versions of Adobe Photoshop:-

- Adobe Photoshop 1.0:- Run on Macintosh (1990).

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- Adobe Photoshop 2.0:- Run on Macintosh (1991).
- Adobe Photoshop 2.5:- Running on Window & Macintosh (1992).
- Adobe Photoshop 3.0, 4.0, 5.0, 5.5, 6.0:- Running on Window, Macintosh, Selron, IRIX (1994-2000).
- Adobe Photoshop 7.0:- Running on Window, Mac OSX, Classic (2002).

Adobe InDesign: - Adobe InDesign is a software application produced by Adobe Systems. It can be used to create works such as posters, flyers, brochures, magazines, newspapers and books. InDesign can also publish content suitable for tablet devices in conjunction with Adobe Digital Publishing Suite. Graphic designers and production artists are the principal users, creating and laying out periodical publications, posters, and print media. It also creates digital publications and content suitable for consumption on tablet computers. The Adobe in Copy word processor uses the same formatting engine as InDesign.

Versions of Adobe InDesign

- InDesign 1.0:- August 31, 1999.
- InDesign 1.0J:- Japanese support.
- InDesign 1.5:- April 2001.
- InDesign 2.0:- January 2002 (just days before QuarkXPress 5). First version to support Mac OS X and native transparencies & drop shadows.
- InDesign CS 3.0:- October 2003 on Windows XP.
- InDesign CS3 (5.0):- April 2007. First Universal binary versions to natively support Intel-based Macs, Regular expression, Table styles, new interface.
- InDesign CS3 Server:- released May 2007.
- InDesign CS4 (6.0):- Introduced September 23, shipped in October 2008.
- InDesign CS5 (7.0):- released April 2010.
- InDesign CS5.5 (7.5):- released April 2011.

5. Adobe Frame Maker: - Adobe Frame Maker is a document processor for the production and manipulation of large structured documents. It is produced by Adobe Systems. Frame Maker exist in XML implementation, the application supports authoring in an XML-based workflow. Frame Maker became an Adobe product in 1995 when Adobe purchased Frame Technology Corp. Frame Maker has two ways of approaching documents: structured and unstructured. Structured Frame Maker is used to achieve consistency in documentation within industries such as aerospace, where several models of the same complex product exist, or pharmaceuticals, where translation and standardization are important requirements in communications about products. Unstructured Frame Maker uses tagged paragraphs without any imposed logical structure, except that expressed by the author's concept, topic organization, and the formatting supplied by paragraph tags.

Versions of Adobe Frame Maker:-

- Frame Maker 1.11b:- Released in 1986 (Solaris and AEGIS)
- Frame Maker 2.0 and 1:- Released in 1989 (Mac version released in 1990). 2.1 were running on OSF/Motif. First version to include the Paragraph Designer, Character Designer, Cross

Reference capability, and the equation editor (same version that ships with Frame Maker today).

- **Frame Maker 3.0:-** Released in 1991. First Windows version available in 1992. Frame Maker 3 introduced table support, hypertext support, and improved book support. In 1992 Sun introduced Frame Builder (Frame Maker with SGML support).
- **Frame Maker 4.0:-** Released in 1993. Frame Maker 4 introduced Change Bars, Side Head support, run in headers and improved on the Table Designer.
- **Frame Maker 5.0, 5.1, 5.1.2:-** Version 5.1 was released in 1995, and 5.1.2 in 1996. Frame Maker 5 introduced online help, long filename support in Windows 95, OLE support, Save to HTML, and import text by reference.
- **Frame Maker 6.0:-** Released in 2000. Frame Maker 6.0 introduced completely rewritten user guide, book wide find/replace and spell check, introduced new and improved chapter/book numbering system, compare document tool and bundled Quadra lay Web Works Publisher.
- **Frame Maker 7.0:-** Released in 2002. Frame Maker 7.0 introduced combined SGML and unstructured version, XML application support introduced, Save As PDF fixed, tagged PDF support, improved running header/footer support, document info stored in XMP format. Frame Maker 7.0 was the last version to run on the Macintosh (OS 8/9), HP/UX and IBM AIX.
- **Frame Maker 7.2:-** Released in 2005. Frame Maker 7.2 introduced multiple undo, and included an unsupported DITA (Darwin Information Typing Architecture) application pack.
- **Frame Maker 8:-** Released in 2007. Frame Maker 8 introduced Unicode, Flash, 3D and built-in DITA support. A patch (8.0.1) was released during November, 2007 to fix a number of errors.

- **Frame Maker 9:-** Released in January, 2009. Frame Maker 9 contains a brand-new user interface and several productivity enhancements. The top new features include: full support for DITA, rich media incorporation, pristine PDF, importing comments from PDF, Asian language support and enhanced Web integration through native HTTP path support.
- **Frame Maker 10:-** Released in January, 2011. Frame Maker 10 included changes such as: DITA 1.2 support, DITA usability enhancements, author XML content, content management support, scripting, automatically checking spelling, finding and changing overrides, using the table catalog,

It support videos, drag and drop editing, creating read/write rules, configuring the maker.ini file, text drag and drop, background color and suppressing alerts.

6. **Microsoft Publisher**: - Microsoft Publisher is an entry-level desktop publishing application from Microsoft, differing from Microsoft Word in that the emphasis is placed on page layout and design rather than text composition and proofing. The current version is Microsoft

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Publisher 2010 Versions of Microsoft Publisher:-

In Microsoft Office 2007, Publisher retained the traditional toolbar of previous Office versions, unlike other Office 2007 programs, which featured the new ribbon interface. Microsoft Publisher 2010 contains the new ribbon interface.

QuarkXPress: - QuarkXPress (often referred to as Quark) is a computer application for creating and editing complex page layouts in a WYSIWYG (What You See Is What You Get) environment. It runs on Mac OS(Operating System) X and Windows. It was first released by Quark, Inc. in 1987 and is still owned and published by them. The most recent version, QuarkXPress 9, allows publishing in English ("International and U.S.") and 36 other languages, including Arabic, Chinese, Japanese, Portuguese, German, Korean, Russian, French, and Spanish. QuarkXPress is used by individual designers and large publishing houses to produce a variety of layouts, from single-page flyers to the multi-media projects required for magazines, newspapers, catalogs, and the like. QuarkXPress once dominated the market for page layout software with over 95% market share among professional users.

Version of QuarkXPress: - In the beginning of 2003 Quark released a server version of QuarkXPress, called Quark DDS. In 2006 Quark renamed Quark DDS to "QuarkXPress Server.

IStudio Publisher: - IStudio Publisher is a desktop publishing (DTP) application developed by c: four. Studio Publisher 1.0 was released on 6 January 2009 at the Macworld Conference & Expo in San Francisco. The most recent version, IStudio Publisher 1.1.8, runs on Mac OS X 10.4 Tiger, 10.5 Leopard, 10.6 Snow Leopard and 10.7 Lion. IStudio Publisher can be used for the page layout and word processing of brochures, newsletters, magazines, posters, adverts, reports, essays, greeting cards and many other document types, of any page size, and with the option of spread editing facing pages. IStudio Publisher has been designed to simplify desktop publishing and enable users to get started quickly.

Scribus: - Scribus is a desktop publishing (DTP) application, released under the GNU General Public License as free software. It is based on the free Qt tool kit; therefore native versions are available for Linux, Unix-like operating systems, Mac OS X, Microsoft Windows, OS/2 and e Com Station. Scribus supports all major bitmap formats, including TIFF (Tagged image file format), JPEG (Joint photographic expert group) and Adobe Photoshop. Vector drawings can be imported or directly opened for editing. It has a built-in scripting engine using Python. It is available in more than 24 languages. Scribus is designed for layout, typesetting, and preparation of files for professional-quality image-setting equipment.

1.7   Most Common Uses of DTP Software

With so many taking advantage of desktop publishing, it difficult to put a finger on what desktop publishing is actually used for. There are many uses of desktop publishing software. Here is a list of the top 5 uses of desktop publishing software.

Graphic Design - Professional graphic designers use DTP programs such as QuarkXPress, Adobe PageMaker, and Adobe Photoshop to create web pages, the front pages of newspapers, and a variety of other visual documentation. Thanks to DTP, graphic design has become more than just pencil and paper. The introduction of desktop publishing has taken graphic design to greater heights. Without desktop publishing, there is no graphic design, and vice versa.

Career Assistance - Word processing also has also played its part in the DTP world. Microsoft Word and Open Office are used faithfully by numerous job seekers everyday as they work to put together the perfect resume, cover letter, or portfolio. Many create documents from scratch, while others take advantage of the templates.

Education - In the education field, teachers and students use a variety of DTP programs to complete assignments and projects. Whether it's an Intro to Desktop Publishing course and the program of choice is QuarkXPress, or a Technical Writing Course that takes Microsoft Word, the use of DTP in educational institutions is very prevalent.

Business - Today, desktop publishing is pretty much used to handle all of the "paperwork" of a business. Although it's possible to run a business without the help of DTP, it isn't the smartest business decision. From sole-proprietorships to Fortune 500 companies, DTP software is a lifesaver and money saver. Examples of DTP use in businesses are business cards, legal documentation, and advertising materials.

Crafts and Personal Projects - Desktop publishing is the crafter's dream come true. Across homes all over the world, parents are looking for easy, cheap, and fun crafts to create with their children, teachers need ideas for students, and the interior decorator could use an origami template. Those who use DTP software for personal use normally stay away from the more advanced DTP software and stick with the more user friendly programs. Examples of desktop publishing projects for personal use are greeting cards, postcards, and invitations**.**

1.8   Advantages of DTP

Page layouts - A page layout refers to the process of arranging or re-arranging text/graphics on a page. A customer should read your content and then take the next step of buying your products/services. With the help of DTP, you can improve the page layout and create an effective design by balancing the contrast, space and colors that would grab the attention of your customers.

Easy customization for any type of document - DTP can revolutionize the way in which your customers, suppliers, investors and employees think about your company. Through desktop publishing, you can improve and customize any type of document that you want to target towards a specific audience. Whether it is a press release, menu, graph, statement, proposal, newsletter, flyer, catalog, schedule or name tags, you can effectively use desktop publishing to customize any document for your business.

Reduced production costs - Advanced desktop publishing usually requires investments on specialized publishing software like QuarkXpress, Adobe Photoshop, Adobe InDesign or Illustrator. However, when you outsource DTP, you will not have to make any investment on DTP equipment or the software and regular upgrades this will minimize your production cost.

Speed – With the help of DTP working speed is greater than as compared to the older technology. We can also established new work and improve the previous work. In this text formatting, image replacement, layout changes is done speedly.
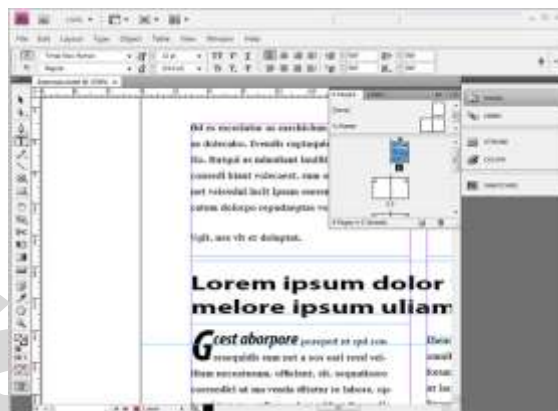
1.9   Page Layout Software

Page layout software is most closely associated with doing desktop publishing for print. This kind of software allows for the integration of text and images on the page, easy manipulation of page elements, the creation of artistic layouts, and multipage publications such as newsletters and books. High-end or professional-level tools include prepress features, while software for home publishing or creative projects involves more templates and clip art.

Professional page layout software - is dominated by **Adobe InDesign,** which is available for Windows and mac OS computers. Other page layout software includes **QuarkXPress** for PCs and Macs, along with **Serif PagePlus** and **Microsoft Publisher** for Windows PCs.

Home publishing software - consists of many special-purpose applications for calendars, T-shirt transfers, digital scrapbooks and greeting cards. Home publishing programs that aren't limited to one purpose include **The Print Shop** and **Print Artist** for Windows PCs and **Print Master** for PCs and Macs.

Graphics Software - For print publishing and webpage design, a vector illustration program and a photo editor are the types of graphics software you need. Some graphics software programs incorporate a few features of the other type, but for most professional work, you'll need each one i.e. Illustration and Photo editing

Illustration - There are two main types of tools used for digital illustration: bitmapped (also known as "raster") and vector applications. Bitmap applications are commonly called "painting" programs, while vector applications are called "drawing" programs. **When** working with scalable vector graphics that allow flexibility when creating artwork that is to be resized or must go through multiple edits. **Adobe Illustrator** and **Inkscape** are examples of professional vector illustration software for PCs and Mac OS. **CorelDraw** is available for PCs.

Photo editing software - also called paint programs or image editors—works with bitmap images such as scanned photos and digital images. Although illustration programs can export bitmaps, photo editors are better for web images and many special photo effects. **Adobe Photoshop** is a popular cross-platform example. Other image editors include **Corel Paint Shop Pro** for Windows PCs and **Gimp**, the free open-source software that is available for most platforms including Windows, Mac OS, and Linux.

Electronic or Web Publishing Software - Most designers today, even those in print, need web-publishing skills. Many of today's page layout programs and other software for desktop publishing now include some electronic publishing capabilities. Even dedicated web designers still need illustration and image-editing software. If your work is exclusively web design, you may want to try a comprehensive program such as Adobe Dreamweaver, which is available for PCs

1.10 Page Layout Programs

Page layout definition - A program that enables you to format pages of text and graphics. Many word processing systems support their own page layout functions, but page layout applications designed

specifically for this purpose generally give you more control over fine points such as text flow, kerning, and positioning of graphics.

Layout involves arranging the text and graphics on the page. The text may flow from column to column on multi column documents like the newspaper.

You may have to move text from one part of a document to another using the electronic pasting features.

You can incorporate illustrations on a page with text. Borders may be drawn around text or illustrations. Illustrations may be sized (made smaller or larger), and additional letter spacing and leading may be added to create a full page. experience and practice as well as a good eye for balance. The following features in most desktop publishing packages:

Layout pages and edit page layouts - You can lay out pages electronically, rather than having to cut and paste using scissors and glue.

Incorporate text and graphics— Your text and graphics can be electronically merged together in the layout.

Multiple columns, column widths, and heights— The software automatically format multiple columns on continued pages. You specify how many columns are to be on a page and the amount of gutter space desired. Gutter space is the amount of space between columns.

Vertical/horizontal printing— Material can be printed either vertically or horizontally on a sheet of paper.

Fit copy to page— you can fit the copy to a page either by reducing the type size, increasing order, increasing borders or margins, and any other number of creative ways you can come up with-changing the size of an illustration, cutting off (cropping) an illustration or even rewording some of the text.

Automatic page numbering— You can have the software automatically number the pages.

Headers and footers— You can also have appropriate headers (titles)at the top of every page and footers at the bottom of every page. Headers or footers can usually include page numbers.

Desktop Publishing Graphics Desktop publishing packages have the capability to scan or import illustrations/graphics either from hard copy or from digital data.

The following are graphics features you can expect to find in DTP packages:

- **Graphic images—** You can add images, borders, lines, arrows, and so on, of various sizes to the text.
- **Shrink/expand and edit images—** You can reduce or enlarge images to fit in a desired space. If necessary, the images can be altered or edited.
- **Accept images from scanners or other draw programs—**You can import images from a scanner or digitizer. These images can be in either text or graphic form. Images can also be imported from either a paint or draw-type graphics package.

- **Layered output for color printing-** You can create camera-ready copy for color separation work when an outside printing process is required. Color work is done by creating up to as many as four film negatives (one for each of the primary colors— red, yellow, and blue) plus black. Each negative is used to create a separate printing plate for each color. Then, as the colors are overprinted, the color of the original photograph is reproduced.

When talking about a page layout, graphic designers often employee distinguished layouts according to their preferences. Types of layout can be classified as magazine layout, advertising layout, static, dynamic, adaptive or responsive. In case you're a graphic artist, user interface designers for websites, or a motion graphic artist; you ought to have sound understanding of these terms i.e. what they mean and when each type of layout should be used.

1.11 Types of Page Layout in Graphic Designing

Broadly page layout can be classified as:

- Mondrian Layout
- Circus Layout
- Multipanel Layout

- Silhouette Layout
- Big-Type Layout
- Alphabet-Inspired Layout

Now let us give you detail about these different types of graphic layouts in details.

a. Mondrian Layout

Mondrian layout refers to the forms: square, landscape or portrait, where every field is parallel to the presentation field and loads the image in order to form a composition that is conceptual.

b. Circus Layout

Circus Layout doesn't imply standard layout. It refers to the irregular composition of elements.

c. Multipanel Layout

Multipanel layout is divided into various sections or theme in same shape such as rectangle, square, cube, etc.

d. Silhouette Layout

Silhouette layout refers to the layouts in the form of illustration or photographic technique, highlighted only through shadow. Presentations can

be shaped text-rap or spot color illustration or refracted smooth image pickup along- with photographic techniques.

e. Big-Type Layout

Big-Type layout lay emphasize on the font styles and big font sizes so as to grab the attention of the audience. Big-type layouts are usually used for creating headline.

f. Alphabet Inspired Layout

Alphabet- Inspired Layout focuses on the arrangement of letters or numbers in an appropriate sequence or forms a word or enhanced to give an impression of story or an idea for the advertisement.

1.5   Introduction to Word Processing

Word processing is the phrase used to describe using a computer to create, edit, and print documents. Of all computer applications, word processing is the most common. To perform word processing, you need a computer, a special program called a word processor, and a printer. A word processor enables you to create a document, store it electronically on a disk, display it on a screen, modify it by entering commands and characters from the keyboard, and print it on a printer. Word processors vary considerably, but all word processors support the following basic features:

- Insert text: Allows you to insert text anywhere in the document.
- Delete text: Allows you to erase characters, words, lines, or pages as easily as you can cross them out on paper.
- Cut and paste: Allows you to remove (cut) a section of text from one place in a document and insert (paste) it somewhere else.
- Copy: Allows you to duplicate a section of text.
- Page size and margins: Allows you to define various page sizes and margins, and the word processor will automatically readjust the text so that it fits.
- Search and replace: Allows you to direct the word processor to search for a particular word or phrase. You can also direct the word processor to replace one group of characters with another everywhere that the first group appears.
- Word wrap: The word processor automatically moves to the next line when you have filled one line with text, and it will readjust text if you change the margins.
- Print: Allows you to send a document to a printer to get hardcopy.

Features of Standard Word Processors: - Word processors that support only these features (and maybe a few others) are called text editors. Most word processors, however, support additional features that enable you to manipulate and format documents in more sophisticated ways. These more advanced word processors are sometimes called full-featured word processors. Full-featured word processors usually support the following features:

- File management: Many word processors contain file management capabilities that allow you to create, delete, move, and search for files.
- Font specifications: Allows you to change fonts within a document. For example, you can specify bold, italics, and underlining. Most word processors also let you change the font size and even the typeface.
- Footnotes and cross-references: Automates the numbering and placement of footnotes and enables you to easily cross-reference other sections of the document.
- Graphics: Allows you to embed illustrations and graphs into a document. Some word processors let you create the illustrations within the word processor; others let you insert an illustration produced by a different program.
- Headers, footers , and page numbering: you to specify customized headers and footers that the word processor will put at the top and bottom of every page. The word processor automatically keeps track of page numbers so that the correct number appears on each page.
- Layout: Allows you to specify different margins within a single document and to specify various methods for indenting paragraphs.
- Macros: A macro is a character or word that represents a series of keystrokes. The keystrokes can represent text or commands. The ability to define macros allows you to save yourself a lot of time by replacing common combinations of keystrokes.
- Mail Merge: Allows you to merge text from one file into another file. This is particularly useful for generating many files that have the same format but different data. Generating mailing labels is the classic example of using merges.
- Spell checker: A utility that allows you to check the spelling of words. It will highlight any words that it does not recognize.
- Tables of contents and indexes: Allows you to automatically create a table of contents and index based on special codes that you insert in the document.
- Thesaurus: A built-in thesaurus that allows you to search for synonyms without leaving the word processor.
- Windows: Allows you to edit two or more documents at the same time. Each document appears in a separate window. This is particularly valuable when working on a large project that consists of several different files.
- WYSIWYG (what you see is what you get): With WYSIWYG, a document appears on the display screen exactly as it will look when printed

Word Processing vs. Desktop Publishing

- Both word processing and desktop publishing are similar in many ways but different in areas that cover the publication of documents. The similarities between the two are:
- Both tools deal with text that can be formatted.
- Both tools can work with tables and pictures.
- Both tools have many similar features like WordArt, Clip Art, and text styles.

The differences between DTPs and Word Processors are:

- Word Processing programs are designed to focus on texts while Desktop Publishing devices are designed to focus more on the structure or display of a document.
- WPs are generally more condensed then DTPs and so are better suited for transferrals across the internet.
- DTP programs give the user the tools required to greatly edit a piece of graphic whilst WPs only allow the most simple edits to graphic such as changing of its size inside a file. However WP programs allow one to more effectively edit text then a DTP.
- DTPs also make it possible for people to save money on the designs of their documents. WPs do not essentially offer this because there are professionals who are experts in using DTP programs WPs have never been an industry in its own. E.g one cannot really make money from being an expert in Word processing programs.
- Word processing involves creation, editing, and printing of text while desktop publishing involves production of documents that combine text with graphics.
- Word processing is difficult to layout and design as compared to desktop publishing. Thus, desktop publishing is used to work on things like newsletters, magazines, adverts, and brochures where layout is important. Word processing documents are common for simple memos, letters, manuscripts, and resumes.

UNIT II

2.1   Introduction to Computer graphics

Computer graphics means drawing pictures on a computer screen. Draw a picture on a computer screen. Computer graphics is an art of drawing pictures, lines, charts, etc using computers with the help of programming. Computer graphics is made up of number of pixels. Pixel is the smallest graphical picture or unit represented on the computer screen. The term of Graphics comes from Greek "graphikos" which means 'something written' e.g. Autograph. So, Graphics are visual images or designs on some surface, such as a wall, canvas, screen, paper, or stone to inform, illustrate, or entertain.

All computer art is digital, but there are two very different ways of drawing digital images on a computer screen, known as raster(composed of pixels) and vector(composed of paths). Simple computer graphic programs like Microsoft Paint and PaintShop Pro are based on raster graphics, while more sophisticated programs such as CorelDRAW, AutoCAD and Adobe Illustrator use vector graphics.

<div align="center">

2.2   Types of Graphics

</div>

2.2.1 Raster graphics

Stare hard at your computer screen and you'll notice the pictures and words   are made up of tiny colored dots or squares called pixels. Most of the simple computer graphic images we come across are pixel related in this way, just like walls are built out of bricks. The first computer screens, developed in the mid-20th century, worked much like televisions, which used to build up their moving pictures by "scanning" beams of electrons (tiny charged particles inside atoms, also called cathode rays) back and forth from top to bottom and left to right—like a kind of instant electronic paintbrush. This way of making a picture is called raster scanning and that's why building up a picture on a computer screen out of pixels is called raster graphics. Raster images are more commonly called bitmap images. A bitmap image uses a grid of individual pixels where each pixel can be a different color or shade. Bitmaps are composed of pixels.

Bitmaps

You've probably heard of binary, the way that computers represent decimal numbers (1,2,3,4 and so on) using just the two digits zero and one (so the decimal number 5678 becomes 101100010110 in binary computer speak). Suppose you're a computer and you want to remember a picture someone is drawing on your screen. If it's in black and white, you could use a zero to store a white area of the picture and a one to store a black area (or vice versa if you prefer). Copying down each pixel in turn, you could transform a picture filling an entire screen of, say, 800 pixels across by 600 pixels down into a list of 480,000 (800 x 600) binary zeros and ones. This way of turning a picture into a computer file made up of binary digits (which are called bits for short) is called a bitmap, because there's a direct correspondence—a one-to-one "mapping"—between every pixel in the picture and every bit in the file.

In practice, most bitmaps are of colored pictures. If we use a single bit to represent each pixel, we can only tell whether the pixel is on or off (white or black); if we use (say) eight bits to represent each pixel, we could remember eight different colors, but we'd need eight times more memory (storage space inside the computer) to store a picture the same size. The more colors we want to represent, the more bits we need. If you scale

an image so it's twice the size, the computer copies each pixel twice over but the image. That's one of the main drawbacks of using raster graphics: they don't scale up to different sizes very well. Another drawback is the amount of memory they require. A really detailed photo might need 16 million colors, which involves storing 24 bits per pixel and 24 times as much memory as a basic black-and-white image. (Do the sums and you'll find that a picture completely filling a 1024 x 768 computer monitor and using 24 bits per pixel needs roughly 2.5 megabytes of memory).

Resolution

The maximum number of pixels in an image (or on a computer screen) is known as its resolution. The first computer I ever used properly, a Commodore PET (Personal Electronic Transactor) is a line of home/personal computers) had an ultra-low resolution display with 80 characters across by 25 lines down (so a maximum of 2000 letters, numbers, or punctuation marks could be on the screen at any one time); since each character was built from an 8 × 8 square of pixels, that meant the screen had a resolution of 640 × 200 = 128,000 pixels (or 0.128 Megapixels, where a Megapixel is one million pixels). The laptop I'm using right now is set to a resolution of 1280 × 800 =1.024 Megapixels, which is roughly 7–8 times more detailed. A digital camera with 7 Megapixel resolution would be roughly seven times more detailed than the resolution of my laptop screen or about 50 times more detailed than that original Commodore PET screen.

2.2.2 Vector

There's an alternative method of computer graphics that gets around the problems of raster graphics. Instead of building up a picture out of pixels, you draw it a bit like a child would by using simple straight and curved lines called vectors or basic shapes (circles, curves, triangles, and so on) known as primitives. With raster graphics, you make a drawing of a house by building it from hundreds, thousands, or millions of individual pixels; importantly, each pixel has no connection to any other pixel except in your brain. With vector graphics, you might draw a rectangle for the basic house, smaller rectangles for the windows and door, a cylinder for the smokestack, and a polygon for the roof. It is the creation of digital images through a sequence of commands or mathematical statements that place lines and shapes in a given two-dimensional or three-dimensional space.

In physics, a vector is a representation of both a quantity and a direction at the same time. Vector graphic file describes a series of points to be connected. At some point, a vector image is converted into a raster graphics image, which maps bits directly to a display space (and is sometimes called a bitmap). The vector image can be converted to a raster image file prior to its display so that it can be ported between systems. A vector file is sometimes called a geometric file. Most images created with tools such as Adobe Illustrator and CorelDraw are in the form of vector image files. Vector image files are easier to modify than raster image. Animation images are also usually created as vector files. Vector graphics use mathematical relationships between points and the paths connecting them to describe an image. Vector graphics are composed of paths. The image to the left below is representative of a bitmap and the image to the right is representative of a vector graphic.
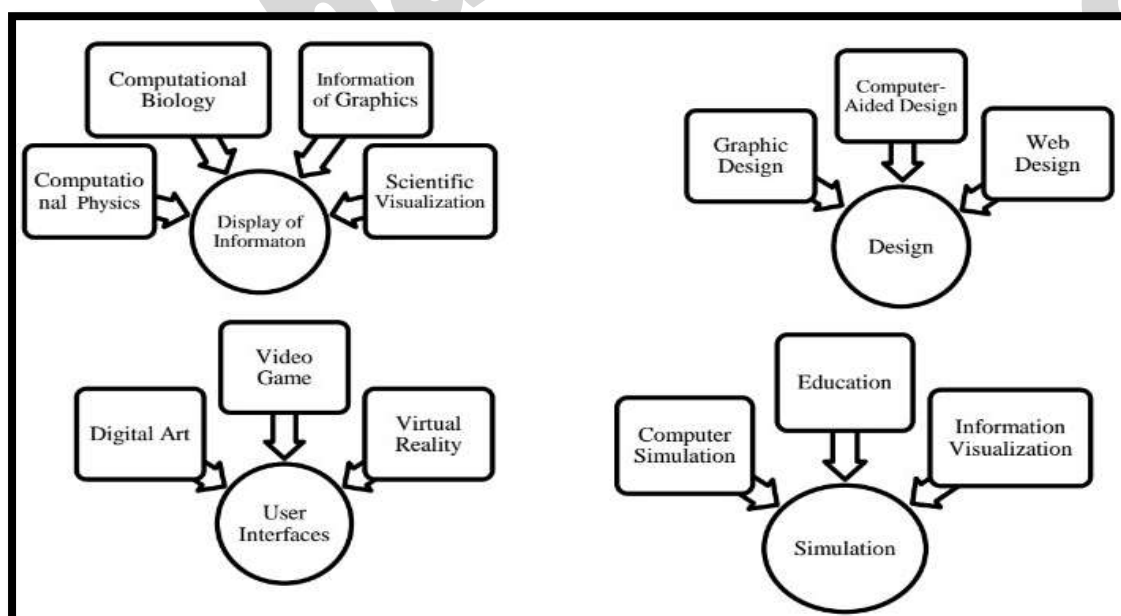
2.3   Application of Computer Graphics

Computer graphics are very useful. Today almost every computer can do some graphics, and people have even come to expect to control their computer through icons and pictures rather than just by typing. Computer-generated imagery is used for movie making, video game and computer program development, scientific modeling, and design for catalogs and other commercial art. Some people even make computer graphics as art. We can classify applications of computer graphics into four main areas:

- Display of information
- Design
- User interfaces
- Simulation

According to these four areas there are several types of applications which are used in today's world. These are,

Paint programs - Allow you to create rough freehand drawings. The images are stored as bit maps and can easily be edited. It is a graphics program that enables you to draw pictures on the display screen which is represented as bit maps (bit-mapped graphics). In contrast, draw programs use vector graphics (object-oriented images), which scale better.

Most paint programs provide the tools shown below in the form of icons. By selecting an icon, you can perform functions associated with the tool. In addition to these tools, paint programs also provide easy ways to draw common shapes such as straight lines, rectangles, circles, and ovals.

Sophisticated paint applications are often called image editing programs. These applications support many of the features of draw programs, such as the ability to work with objects. Each object, however, is represented as a bit map rather than as a vector image.

Illustration/design programs - Supports more advanced features than paint programs, particularly for drawing curved lines. The images are usually stored in vector-based formats. Illustration/design

programs are often called draw programs. Presentation graphics software: Lets you create bar charts, pie charts, graphics, and other types of images for slide shows and reports. The charts can be based on data imported from spreadsheet applications.

Animation software - Each image is like a frame in a movie. It can be defined as a simulation of movement created by displaying a series of pictures, or frames. A cartoon on television is one example of animation. Animation on computers is one of the chief ingredients of multimedia presentations. There are many software applications that enable you to create animations that you can display on a computer monitor.

There is a difference between animation and video. Whereas video takes continuous motion and breaks it up into discrete frames, animation starts with independent pictures and puts them together to form the illusion of continuous motion.

CAD software - Enables architects and engineers to draft designs. It is the acronym for computer-aided design. A CAD system is a combination of hardware and software that enables engineers and architects to design everything from furniture to airplanes. In addition to the software, CAD systems require a high-quality graphics monitor; a mouse, light pen, or digitizing tablet for drawing; and a special printer or plotter for printing design specifications.

CAD systems allow an engineer to view a design from any angle with the push of a button and to zoom in or out for close-ups and long-distance views. In addition, the computer keeps track of design dependencies so that when the engineer changes one value, all other values that depend on it are automatically changed accordingly. Until the mid 1980s, all CAD systems were specially constructed computers. Now, you can buy CAD software that runs on general-purpose workstations and personal computers.

Desktop publishing - Provides a full set of word-processing features as well as fine control over placement of text and graphics, so that you can create newsletters, advertisements, books, and other types of documents. It means by using a personal computer or workstation high-quality printed documents can be produced. A desktop publishing system allows you to use different typefaces, specify various margins and justifications, and embed illustrations and graphs directly into the text. The most powerful desktop publishing systems enable you to create illustrations; while less powerful systems let you insert illustrations created by other programs.

As word-processing programs become more and more powerful, the line separating such programs from desktop publishing systems is becoming blurred. In general, though, desktop publishing applications give you more control over typographical characteristics, such as kerning, and provide more support for full-color output.

A particularly important feature of desktop publishing systems is that they enable you to see on the display screen exactly how the document will appear when printed. Systems that support this feature are called WYSIWYGs (what you see is what you get). Until recently, hardware costs made desktop publishing systems impractical for most uses. But as the prices of personal computers and printers have fallen, desktop publishing systems have become increasingly popular for producing newsletters, brochures, books, and other documents that formerly required a typesetter.

Once you have produced a document with a desktop publishing system, you can output it directly to a printer. In general, applications that support graphics require a powerful CPU and a large amount of memory. Many graphics applications—for example, computer animation systems—require more computing power than is available on personal computers and will run only on powerful workstations or specially designed graphics computers. This is true of all three-dimensional computer graphics applications.

In addition to the CPU and memory, graphics software requires a graphics monitor and support for one of the many graphics standards. Most PC programs, for instance, require VGA graphics. If your computer does not have built-in support for a specific graphics system, you can insert a video adapter card.

2.6   Typefaces

Typeface is a set of characters of the same design. By characters I mean letters, numbers, symbols, and punctuation marks. It's the shapes, sizes, and overall design of all those elements you see on anything you read that constitute typeface. Think of it as the primary design of the alphabet and everything else on the page. Popular typefaces which you are undoubtedly familiar with include Times, Arial, and Calibri. You will find all of these options under your Font directory in Microsoft Word which would understandably lead anyone to believe that they are just fonts so refer to the following definition to see the difference. A font family or typeface refers to the collection of related fonts across styles and sizes. A typeface usually comprises an alphabet of letters, numerals , and punctuation marks; it may also include ideograms and symbols , or consist entirely of them, for example, mathematical or map-making symbols. Most typefaces can be classified into one of four basic groups: those with serifs, those without serifs, scripts and decorative styles.

2.7   Anatomy of Typefaces

Typography is not just about playing with various fonts on Google Fonts or Adobe Typekit. Every typeface and its characters have specific anatomy composing of an array of attributes and forms that are described through a variety of different terms. This is very much the same thing as the different names for every part of the human body. The same applies to typography as well. Take this post as an introduction into this subject.

- **Apex** - The point formed at the top of a character such as "A", where the left and right strokes meet. The apex can has many forms. It can be a sharp, blunt, or rounded and is often a feature helping you identify specific typefaces.
- **Arm -** A horizontal stroke is open at one or both ends, for example on the "T" and "F". Another examples of upstroke can be found on "K" and "Y". Important to remember is that the arm is not connected to a stroke or stem at one or both ends. Arm can also be called bar.
- **Ascender** - Ascender is an upward vertical part of lowercase letters that extend above the x-height. For example, you can find ascender on letters like "h" and "b". Ascender's height can be another feature to identify characteristic of specific typefaces.
- **Axis** - Imagine a line drawn from top to bottom of a glyph bisecting the upper and lower strokes is the axis. The direction of the axis of the lowercase "o" is used to measure the angle of stress. A completely vertical axis indicates a design with vertical stress. When the axis leans to the left or right it means the design has positive or negative stress.

- **Barb -** A sharp pointed serif on some curved strokes. For example, in letters ″C″, ″G″ and ″S″.
- **Beak** - A beak is a type of decorative stroke at the end of the arm of a letter. It is connected to the arm by the terminal.
- **Bowl** - The part of a character that encloses a space in circular letterforms such as ″d″, ″b″, ″o″, ″D″ and ″B″. The bowl may be closed or open. Remember that the shape and size of the counter and bowl can affect readability of the text on the website. When the size of text is small, bowls of some letters can appear solid. Also, some heavy typefaces are prone to closing up.
- **Bracket -** The bracket is a curved or wedge-like shape between the stem and serif present on some fonts. Brackets can have different shapes starting with deep curves and ending up with more gentle.
- **Chin -** The angled terminal of a "G".
- **Counter** - In typeface, counter is the enclosed or partially enclosed circular or curved negative space (white space) of some letters like ″d″, ″o″ and ″s″. Counter can also be used in case of letters ″m″, ″n″, or ″h″ where the space is enclosed only in some degree.
- **Cross Stroke** - A horizontal cross stroke is a shape that intersects the stem of a lowercase ″t″ or ″f″. Although often used interchangeably, the cross stroke differs from an arm and a crossbar because it intersects or crosses over the stem. You can use its different positioning, thickness and slope of to distinguish between various type designs and to choose type for your project.
- **Crossbar** - The horizontal stroke in letters. For example, you can find it in the middle of uppercase "A" and ″H″. Another example of horizontal stroke is enclosing the bottom of the eye of an e. In some typefaces this stroke is sloping. The difference between crossbar, arm and cross stroke is that each end connects to a stem or stroke and doesn't cross over the stem or stroke. Crossbar is also known as a bar.
- **Crotch** - The inner point at which two angled strokes meet. The best example is letter "V".
- **Descender** - The part of the letters that extend below the baseline. For example, part of lowercase letters like ″g″ and ″y″. Remember that the length and shape of the descender can have an effect on the readability of text. When you find yourself in situation where the readability is poor you can try to increase the line height or leading.
- **Ear** - Ear is a small stroke typically extending from the upper-right side of the bowl of lowercase "g". It also appears in the angled or curved lowercase "r". This decorative part of a letter is usually on the upper right side of the bowl.
- **Finial -** Finial is the usually a somewhat tapered curved end on letters such as the bottom of "C" or "e" and also on the top of some variations of letter "a". Another way to describe finial is as an ornamental flourish added as a variation to some characters in a specific typeface.
- **Hairline -** The easiest way to find hairline in your favorite typeface is to look for the thinnest stroke. The best examples are typefaces consisting of strokes of various widths where those differences are more visible. Another usage of hairline is as hairline rule – the thinnest graphic rule or line that is still printable on a specific device. One more interesting fact ... Hairline or hair is also a type of serif – the minimum thickness for a serif.
- **Hook** - A curved, upstanding stroke or shape in a terminal. Hook is usually found on a lowercase "f". In other words, almost anything curved or bent like a hook which limits it to letter "f".
- **Leg** - Imagine an uppercase or lowercase letter "K". Next, focus on the short, descending portion of these letters. Leg is the lower, down sloping stroke present on these letters. Another

examples include the same stroke on letter "R". Interestingly, the tail you can find on letter "Q" is also sometimes referred to as a leg. Another name for leg is tail (remember "Q"?).

- **Ligature** - Ligature is something special that can be seen in various typefaces. In certain situation two or even more letters are joined together to form one glyph or character. This method is often used to improve readability and appearance of characters in typeface. Otherwise, this character might overlap each other so it is better to join them.
- **Link** - A small, usually curved shape or stroke connecting the top and bottom bowls of some variations of lowercase letter "g" (when both bowls are present like in Open Sans or Lato typeface). Other names include neck and terminal.
- **Loop** - When the enclosed or partly enclosed counter below the baseline of letter "g" connected to the bowl by a link is present, it is called loop. In some cases, the small curve or hook present at the end of letter "j" and "q" is also called a loop. Unfortunately, this is wrong.
- **Serif** - In a typeface, serif is a stroke added as a stop to the beginning and end of the main strokes of some characters. Serifs can also be described as hairline (hair), slab or wedge and can be either bracketed or unbracketed.
- **Shoulder** - Shoulder is the curve at the beginning of a leg of a character. For example, letters like "m" and "n" has shoulder.
- **Spine** - The main curved stroke of letter "s" and "S". Depending on the specific typeface, the spine can be almost vertical or horizontal.
- **Spur** - A small projection off a main stroke. Some examples include certain variations of letter "G".
- **Stem** - Stem is the main, vertical and full-length stroke in upright characters. It is also known as stroke.
- **Swash** - In typeface, swash is a decorative addition used to replace a terminal or serif. In history, capital "swash" characters extending to the left were a lot of times used to begin sentences. Some swash characters were also used to begin words or to end them.
- **Tail -** A descending stroke. It is used in typeface for decorative purposes. Examples of tail include decorative stroke on the letter "Q" or the descending strokes on "K" or "R". Another examples are the descenders on letters "g", "j", "p", "q" and "y".
- **Terminal** - For terminal, there are two ways to describe it. First, it is a type of curve on the end of any stroke not including a serif. Second description includes ears, links, loops and curved pieces of tails. Additionally, we can distinguish between ball and beak terminals. The first one is a combination of a dot and the curved bit at the end of some tails and arms. The second is the beak at the end of an arm and the curved bit between the beak and the arm.
- **Vertex** - Do you remember the crotch? Well, the outside part at the bottom and top of a character where the crotch is called vertex.

2.7   **FONTS**

A design for a set of characters. A font is the combination of typeface and other qualities, such as size, pitch, and spacing. For example, Times Roman is a typeface that defines the shape of each character. Within Times Roman, however, there are many fonts to choose from -- different sizes, italic, bold, and so on. (The term font is often used incorrectly as a synonym for typeface.) Fonts are the digital representations of typefaces. Font is the variation and implementation of particular point size and style such as 12 point Times New Roman or 10 point Helvetica. A font is like a software program that

instructs the computer or printer on how to present or print the typeface. Adobe's type glossary lists a font as "one weight, width and style of a typeface. The height of characters in a font is measured in points, each point being approximately 1/72 inch. The width is measured by pitch, which refers to how many characters can fit in an inch. Common pitch values are 10 and 12. Laser, ink-jet, and dot-matrix printers offer the widest selection of fonts. These printers support a certain set of resident fonts, but you can expand this set by loading different fonts from software (soft fonts) or from font cartridges. Computers and devices use two methods to represent fonts. In a bit-mapped font, every character is represented by an arrangement of dots. To print a bit-mapped character, a printer simply locates the character's bit-mapped representation stored in memory and prints the corresponding dots. Each different font, even when the typeface is the same, requires a different set of bit maps.

In vector graphics systems, the shape or outline of each character is defined geometrically. The typeface can be displayed in any size, so a single font description really represents innumerable fonts. For this reason, vector fonts are called scalable fonts -- they can be any size (scale). Other terms for vector fonts are object-oriented fonts or outline fonts. Bit-mapped fonts look almost the same whether printed on a 300-dpi printer or a 1,200-dpi printer. Vector fonts look better, the higher the resolution. Despite the advantages of vector fonts, bit-mapped fonts are still widely used. One reason for this is that small vector fonts do not look very good on low-resolution devices, such as display monitors. Many computer systems, therefore, use bit-mapped fonts for screen displays. These are sometimes called screen fonts.

2.8   **Types of Fonts**

Bitmap fonts

An assortment of bitmap fonts from the first version of the Macintosh operating system. A bitmap font is one that stores each glyph as an array of pixels (that is, a bitmap). It is less commonly known as a raster font. Bitmap fonts are simply collections of raster images of glyphs. For each variant of the font, there is a complete set of glyph images, with each set containing an image for each character. For example, if a font has three sizes, and any combination of bold and italic, then there must be 12 complete sets of images. **Advantages of bitmap fonts include:**

- Extremely fast and simple to render
- Easier to create than other kinds.
- Un scaled bitmap fonts always give exactly the same output when displayed on the same specification display.
- Best for very low-quality or small-size displays where the font needs to be fine-tuned to display clearly.

The primary disadvantage of bitmap fonts is that the visual quality tends to be poor when scaled or otherwise transformed, compared to outline and stroke fonts and providing many optimized and purpose-made sizes of the same font dramatically increases memory usage. The earliest bitmap fonts were only available in certain optimized sizes such as 8, 9, 10, 12, 14, 18, 24, 36, 48, 72, and 96 points

(assuming a resolution of 96 DPI), with custom fonts often available in only one specific size, such as a headline font at only 72 points.

2.8.1 Outline fonts - Outline fonts or vector fonts are collections of vector images, consisting of lines and curves defining the boundary of glyphs. Early vector fonts were used by vector monitors and vector plotters using their own internal fonts, usually with thin single strokes instead of thick outlined glyphs. The advent of desktop publishing brought the need for a universal standard to integrate the graphical user interface of the first Macintosh and laser printers. The term to describe the integration technology was WYSIWYG (What You See Is What You Get). The universal standard was (and still is) Adobe PostScript. Examples are PostScript Type 1 and Type 3 fonts, TrueType and OpenType.

The primary advantage of outline fonts is that, unlike bitmap fonts, they are a set of lines and curves instead of pixels; they can be scaled without causing pixellation. Therefore, outline font characters can be scaled to any size and otherwise transformed with more attractive results than bitmap fonts, but require considerably more processing and may yield undesirable rendering, depending on the font, rendering software, and output size. Even so, outline fonts can be transformed into bitmap fonts beforehand if necessary. The converse transformation is considerably harder, since bitmap fonts requires heuristic algorithm to guess and approximate the corresponding curves if the pixels do not make a straight line. Outline fonts have a major problem, in that the Bézier curves used by them cannot be rendered accurately onto a raster display (such as most computer monitors and printers), and their rendering can change shape depending on the desired size and position.

2.8.2 Stroke-based fonts - A glyph's outline is defined by the vertices of individual stroke paths, and the corresponding stroke profiles. The stroke paths are a kind of topological skeleton of the glyph. The advantages of stroke-based fonts over outline fonts include reducing number of vertices needed to define a glyph, allowing the same vertices to be used to generate a font with a different weight, glyph width, or serifs using different stroke rules, and the associated size savings. For a font developer, editing a glyph by stroke is easier and less prone to error than editing outlines. A stroke-based system also allows scaling glyphs in height or width without altering stroke thickness of the base glyphs. The most elementary and different kinds of fonts examples are listed here :

Serif - Serif fonts are typefaces composed of lines with their ends embellished with small marks or strokes making them easy to read. Serifs originated in the Latin Alphabet. An example of classic serif fonts are Times Roman, New Century Gothic, and Palatino.

Sans Serif - Sans Serif fonts are fonts composed of simple lines. They do not have the small embellishments that the Serif fonts do on the end of each character. The term comes from the French word Sans, meaning "without" and "serif" (Dutch) with the meaning "line". Some popular sans serif fonts are Helvetica, Avant Garde and Geneva.

Display - Display type is also known as headline type and is meant to draw and hold a viewer's attention. They tend to appear in advertisements on billboards, posters, book jackets and packaging. Type usually set larger than 14 point is considered "display" and sets the tone for a design piece.
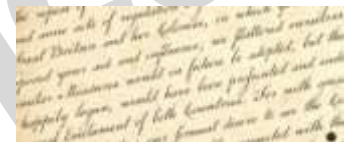
Slab Serif - The Slab Serif is about a 200 year old letterform that came from Britain and quickly became very popular, with their geometric and beefy block-like serifs plastered all over everything from crates to pamphlets. Until this time, the usual font of the day had been used for long sections of type, but as the printing industry grew, advertisers were in need of a bold call-out type. Slab fonts carry a certain typographic authority, that demand the viewers attention.

Hand drawn - Hand drawn fonts are a great way to add a little character and charm to your design. Some are created completely by hand, while others are sketched and scanned into Illustrator or Photoshop. Some are very clean and easy to read, while others may have a natural sketchy flow giving a piece a particular personality or mood. There are endless possibilities in creating hand drawn fonts by combining qualities found in various styles of type such as Art Deco, historic display, thin, and thick slabs, etc.

Script - Script fonts come in many styles from casual to highly organized and elegant. They are based on the fluid strokes that are created by handwriting. Script fonts are popularly used for formal invitations such as wedding or concerts, as well as informal gatherings.

Retro - Retro type is used to carry a viewer decades into the past achieving an "old fashioned" look to creative pieces. Retro fonts are found in serif, sans serif, and script typefaces and are used bold headlines in vintage and classic posters, logos and packages

Dingbat - Dingbats, also known as printers characters or ornaments, are fonts that have shapes and symbols in the place of the alphabet and numeric characters. There are many varieties: Pictograms, design elements, user interface elements, buttons, illustrations, and bullet lists. One of the main advantages is the ability to create various sizes and colors without having to do any special editing. Dingbat types of fonts are eminently useful and should be a part of your basic type library

Monospaced - Monospaced fonts were created in order to meet the requirements of the typewriter. They are referred to as being non-proportional fonts, or fixed-width fonts. Meaning, that all of their characters occupy the same amount of horizontal space as opposed to variable width fonts that have different spacings and widths–they are proportionally spaced. Some examples of these fonts are Courier and Monaco. They are not defined by their beauty, and are often more difficult to read than proportional fonts. Monospaced types of fonts are always useful, though, in particular situations where you need things to line up.

Novelty - A Novelty font is considered to be any typeface that does not fall into one of the major categories of type – serif, sans serif, Old English, script or cursive. Often they are attention-grabbers and are used in headlines or call-outs and commonly define the personality of your piece. Novelty types of fonts are

fun to look for and collect, and there is a novel typeface for any mood or aesthetic you can think of. The possibilities are simply endless, as there are no rules to break when designing a novelty typeface.

10). Comic - Comic fonts are usually friendly, easy to read and most popular for use in comics and cartoons–there's lots of alternatives out there these days to choose from (in order to avoid the infamous Comic Sans) if you're looking to find a comic book theme. In making your font choices you should consider ultra-legible fonts that are easy on the eyes and brain for all age groups.
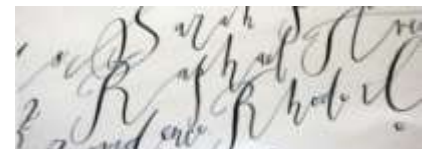
11). Stencil - The Stencil fonts were invented in 1937 by R. Hunter Middleton. They consisted of capital letters with rounded edges and thick main strokes with breaks in the face.The invention was for the Ludlow Typograph Company in Chicago where he worked. The letters were set with hand-assembled brass matrices for their line casting machine and were created mainly to set newspaper headlines. Over the years, stencil use has not only been customary for newspaper headlines, public signage and crate labeling, but also very artistically used on posters, graffiti or street art. Here's a great resource for beautiful modern stencil fonts.

12) Blackletter -This typeface is also referred to as Gothic, or Old English and was used to set the Gutenberg Bible – the first book printed with movable type. It is characterized as having black texture and very decorated caps, with dramatic thick to thin strokes and serifs. The Blackletter typeface is highly stylized with elaborate swirls, and yet is very readable.

13). Calligraphic - Calligraphy is based on an ancient writing technique using flat edged pens to create unique and artistic lettering. The movement and the direction of the pen determined the thickness of the lines. This stylistic writing is a form of fine art and is commonly used for typesetting formal invitations or letters.

14) Typewriter - Typewriter fonts were created to resemble the classic mechanical typewriters, which were used for composing old letters and documents before the digital age. The varieties available are perfect for projects that require a retro or vintage look. 1913 Typewriter designed by Gilles Le Corre is a great example of this type of font. Often these fonts take on a grungy characteristic in order to represent irregularities and erosions similar to the old well-worn books of poetry and literature. Typewriter fonts are great for poster design and scrapbooks, as well as designs incorporating snippets of old letters and stories.

15) Pixel - Pixel fonts, also known as Screen Fonts, were created solely for the purpose of display on a computer screen and looks perfectly sharp because it's structure is based on squares. These fonts have become popular for their clarity and saved the day for designers in the past, who would attempt displaying fonts in small sizes. Pixel fonts are crisp and usually displayed in high contrast colors such as black and white. Not grays or other shaded in-betweens. These types of of fonts seem to be out of style with high resolution screens being the norm now, which contributes to a lessoning of the awareness of this aesthetic.

16) Grunge - Grunge fonts are represent a style of dirty, loud and irregular design elements often used to characterize a portion of the 80's and 90's disgruntled, rebellious generation. Certainly in typography a growing discontentment with clean, neat and crisp design emerged. The design of the day was heavy, messy and emotionally charged.

2.9   **How to Create Your Own Font**

If you're a little more serious about creating a unique font, and want more customization options, there are several free tools to choose from. However, before we get to the software itself, there are a couple of introductory steps we need to take.

Step 1: Outline a Design Brief

This is the most important step in the font creation process. As with any design project, it's imperative that you outline your objectives from the outset. Here are some potentially important questions to ask when creating your own design brief are Will your font be project specific, or have a broad application, Will that application require a large or small font size, Do you want the basic font type be Serif or Sans Serif, Have you come across any fonts you could use for inspiration, Once you have the answers to these questions, you can then move onto planning out your font's design.

Step2: Start on Paper

Start the early design work should be done on paper. Trying to create the shapes that represent your vision could potentially be awkward and time-consuming on a computer and putting pen to paper is often easier and quicker to begin with.

- Mark out the baseline and other important height lines to use as a guide.
- Look at other fonts to see where shapes are repeated within a character set.
- Moving the page, instead of your hand, will allow you to create smoother curves.

Step 3: Choose and Install Your Software

For intermediate typography design there are a number of free applications available, and it's important to choose one that feels comfortable to use, and has the required functionality to get the job done. Here are some of our favorites.

Fontforge – Fontforge is an open-source font editor with a huge amount of online documentation to guide you through the design process. FontForge is a powerful tool for creating beautiful custom fonts. You can start from scratch using the available tools or upload images of fonts to use as a starting point.

Birdfont – Birdfont is slightly more intuitive than FontForge, so it may be a better option for anyone looking to get started quickly. Birdfont is free for creating fonts under the SIL Open Fonts License, but requires a donation of $5 or more for commercial use.

3.   **Glyphr Stusio -** While the above two tools are desktop-based, Glyphr Studio is strictly web only. As for ease of use, Glyphr Studio falls in-between the other solutions on this list. It's slightly more intuitive than FontForge, and offers more of an aesthetically pleasing design interface than both alternatives. Glyphr Studio also comes with a decent amount of support documentation though it's not as in-depth as that of FontForge. In addition, while this tool doesn't give you the option to upload an image, you *can* upload font files to edit further.

Step 4: Start Creating

Once you've installed your software, you're ready to start creating your font. Depending on your software choice you can start from scratch, upload images of your paper drawings, or upload a font file for editing. Once you have your control characters translated, you can expand to include letters, numerals, and other characters.

This part of the process can be quite lengthy to begin with, as each piece of software will have its own learning curve. However, once you start getting the hang of things, the process should speed up fairly quickly. To help get you up to speed, here is some of the terminology you'll need to become familiar with at the start:

Glyph: Each individual character within a font is considered a glyph.

Baseline: The invisible line on which all of the font characters sit.

Ascender line: The invisible line at which ascenders begin.

Ascender height: The height of the upward vertical stroke on letters such as "h" and "k".

Descender depth: The depth of the downward vertical stroke on letters such as "p" and "y".

Stem: The main vertical stroke of a letter such as "F" and "T".

Bowl: The closed rounded part of letters such as "b", "d" and "o".

Bézier curve: A parametric formula used to model smooth scalable curves.

Step 5: Refine Your Character Set

During the font creation process, it is easy to focus solely on the individual characters. However, it's also important to consider how the font will look as a whole when refining them. Here are a few tips to keep you on track while refining your character set:

- Pay attention to the spacing and kerning of the letters by combining a series of them during the process.
- Test out various sizes for each character especially if the application of your font has the potential to be broad.
- Print your work regularly throughout the design process as seeing things in print often makes it easier to spot subtle mistakes.
- You've designed your font, chosen and got to grips with your software, translated it to a digital format, and refined it to perfection. All that's left now is to upload it.
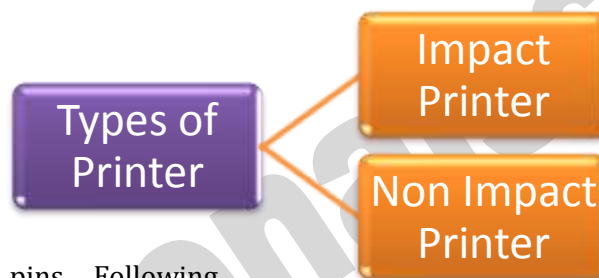
Step 6: Upload Your Font to WordPress

There are a number of upload methods available. The simplest is to use a font plugin, one of the most popular .

2.10   Printer

In computing, a printer is a peripheral device which makes a persistent human-readable representation of graphics or text on paper. There are two types of printers.

Types of Printer

Impact Printer

Non Impact Printer

or pins. Following

Impact printers

An impact printer makes contact with the paper. It usually forms the print image by pressing an inked ribbon against the paper using a hammer are some examples of impact printers.

 Dot-Matrix Printers - The dot-matrix printer uses print heads containing from 9 to 24 pins. These pins produce patterns of dots on the paper to form the individual characters. The 24 pin dot-matrix printer produces more dots that a 9 pin dot-matrix printer, which results in much better quality and clearer characters. The general rule is: the more pins, the clearer the letters on the paper. The pins strike the ribbon individually as the print mechanism moves across the entire print line in both directions, i-e, from left to right, then right to left, and so on. The user can produce a color output with a dot-matrix printer (the user will change the black ribbon with a ribbon that has color stripes). Dot-matrix printers are inexpensive and typically print at speeds of 100-600 characters per second.

Daisy-wheel printers - In order to get the quality of type found on typewriters, a daisy-wheel impact printer can be used. It is called daisy-wheel printer because the print mechanism looks like a daisy; at the end of each "Petal" is a fully formed character which produces solid-line print. A hammer strikes a "petal" containing a character against the ribbon, and the character prints on the paper. Its speed is slow typically 25-55 characters per second.

Line printers

In business where enormous amount of material are printed, the character-at-a-time printers are too slow; therefore, these users need line-at-a-time printers. Line printers, or line-at-a-time printers, use special mechanism that can print a whole line at once; they can typically print the range of 1,200 to 6,000 lines per minute. Drum, chain, and band printers are line-at-a-time printers.

Drum printer - A drum printer consists of a solid, cylindrical drum that has raised characters in bands on its surface. The number of print positions across the drum equals the number available on the page. This number typically ranges from 80-132 print positions. The drum rotates at a rapid speed. For each possible print position there is a print hammer located behind the paper. These hammers strike the paper, along the ink ribbon, against the proper character on the drum as it passes. One revolution of the drum is required to print each line. This means that all characters on the line are not printed at exactly the same time, but the time required to print the entire line is fast enough to call them line printers. Typical speeds of drum printers are in the range of 300 to 2000 lines per minute.

Chain printers - A chain printer uses a chain of print characters wrapped around two pulleys. Like the drum printer, there is one hammer for each print position. Circuitry inside the printer detects when the correct character appears at the desired print location on the page. The hammer then strikes the page, pressing the paper against a ribbon and the character located at the desired print position. An impression of the character is left on the page. The chain keeps rotating until all the required print positions on the line have filled. Then the page moves up to print the next line. Speeds of chain printers range from 400 to 2500 characters per minute.

Band printers - A band printer operates similar to chain printer except it uses a band instead of a chain and has fewer hammers. Band printer has a steel band divided into five sections of 48 characters each. The hammers on a band printer are mounted on a cartridge that moves across the paper to the appropriate positions. Characters are rotated into place and struck by the hammers. Font styles can easily be changed by replacing a band or chain.

Non-impact printers

Non-impact printers do not use a striking device to produce characters on the paper; and because these printers do not hammer against the paper they are much quieter. Following are some non-impacted printers.

2.11   **Types of Printer used in Graphics**

Laser Printer

A laser printer is a popular type of personal computer printer that uses a non-impact (keys don't strike the paper), photocopier technology. When a document is sent to the printer, a laser beam "draws" the document on a selenium-coated drum using electrical charges. After the drum is charged, it is rolled in toner, a dry powder type of ink. The toner adheres to the charged image on the drum. The toner is transferred onto a piece of paper and fused to the paper with heat and pressure. After the document is printed, the electrical charge is removed from the drum and the excess toner is collected. Most laser printers print only in monochrome. A color laser printer is up to 10 times more expensive than a monochrome laser printer. IBM introduced the first laser printer in 1975 for use with its mainframe computers. In 1984, Hewlett-Packard revolutionized laser-printing technology with its first LaserJet, a compact, fast, and reliable printer that personal computer users could afford. Since then, laser printers have decreased further in price and increased in quality. Hewlett Packard continues to be the leading manufacturer with competitors including Lexmark, Okidata, and Xerox. The laser printer is different from an inkjet printer in a number of ways. The toner or ink in a laser printer is dry. In an inkjet, it is wet. Over time, an inkjet printer is about ten times more expensive to operate than a laser printer because ink needs replenishing more frequently. The printed paper from an inkjet printer will smear if wet, but a laser-printed document will not. Both types of printer operate quietly and allow fonts to be added by using font cartridges or installing soft fonts. If your printing needs are minimal, an inkjet printer is sufficient. But if your printing volume is high, consider buying a laser printer. Print capacity and speed: Personal laser printers are sufficient for printing an average of 200 pages per week. These are low-end and cost

$200 and up. They can print up to eight ppm (pages per minute). A workgroup printer is needed if an average of 1000 pages per week is needed. These print up to 24 ppm and cost $1000 to $6000 and more. Production printers are needed for printing 50,000 or more pages per week. These are quite expensive and are used by commercial publishers. They can print up to 700 ppm and cost $100,000 and up. They can print 24 hours a day, seven days a week. Resolution: The standard resolution in most laser printers today is 600 dots-per-inch (dpi). This resolution is sufficient for normal everyday printing including small desktop publishing jobs. A high-end production printer might have a resolution of 2400 dpi. Some laser printers still use a resolution of 300 dpi. This resolution can cause jagged lines to appear on the outer edge of an image. Hewlett Packard created RET (Resolution Enhancement Technology) to correct this. RET inserts smaller dots at the edges of lines and to smooth the rough edges. RET does not improve the resolution, but the document looks better. If you purchase a printer with 300 dpi, make sure it has RET. Printer languages: Printer Control Language (PCL) is the standard printer language for Hewlett Packard and most other laser printers (which are mostly HP-compatible). PCL is used for printing letters, database printouts, spreadsheets, and simple graphics. Postscript printers are used with desktop publishing software and drawing packages. Postscript printers are the norm for Apple Macintosh printers. A laser printer that comes with Postscript installed is more expensive. A laser printer that uses PCL can be upgraded to Postscript by installing a software driver provided by the manufacturer of the laser printer. The printer might require more memory when upgraded to use Postscript. This is because a laser printer needs the entire image in memory before printing, and a Postscript printer requires more memory to process than a PCL printer does. The application being used must support Postscript in order for the laser printer to print Postscript documents.

Paper handling: Paper handling is important when shopping for a laser printer. Most laser printers use letter-size, cut-sheet paper. High-end production printers use continuous sheet paper. Laser printers can print on transparencies, adhesive labels, and lightweight cards. A laser printer with duplex printing can print on one side of the paper, turn the paper over, and print on the other side. Most laser printers, however, use simple printing with manual duplex printing. Manual duplex printing is achieved by changing the print options in the printer's properties or printing one side and taking that same paper and reinserting it into the printer to print on the other side. FPOT and warm-up time: A final consideration in purchasing a printer is FPOT (first paper out time) and warm-up time. When a laser printer receives data from the computer to print, it takes 5 to 30 seconds to prepare the printer to print a new job. This is in addition to the time it takes to actually print the document. The warm-up time is as important. When the printer is turned on, it needs time to warm up the fuser to operating temperature. If the printer has a standby mode or is turned off between printing jobs, the warm-up time becomes even more important. Large workgroup and production printers can take 5 to 15 minutes to warm up. This waiting period can hinder overall productivity.

Some Point on laser printer

- Laser printers work through electronically charging a piece of paper with the digital images selected for printing. They use a type of powdered ink called toner, which sticks to the paper where it has an electronic charge and is permanently melted to the paper using a hot fusing wire.
- Laser printers are much more efficient than ink-jet printers, capable of producing several thousand prints from one toner cartridge.

- The advantage of using a laser printer is that it produces a high quality print, very quickly and quietly.
- The disadvantage is that colour laser printers are very expensive and tend to produce images that have a shiny, artificial look. They are more suited to printing text than graphics.

Inkjet Printer

Inkjet printing is a type of computer printing that recreates a digital image by propelling droplets of ink onto paper, plastic, or other substrates.[1] Inkjet printers are the most commonly used type of printer,[2] and range from small inexpensive consumer models to expensive professional machines. The concept of inkjet printing originated in the 20th century, and the technology was first extensively developed in the early 1950s. Starting in the late 1970s inkjet printers that could reproduce digital images generated by computers were developed, mainly by Epson, Hewlett-Packard (HP), and Canon. In the worldwide consumer market, four manufacturers account for the majority of inkjet printer sales: Canon, HP, Epson, and Brother. The emerging ink jet material deposition market also uses inkjet technologies, typically print heads using piezoelectric crystals, to deposit materials directly on substrates.

There are two main technologies in use in contemporary inkjet printers: continuous (CIJ) and Drop-on-demand (DOD). With Inkjet printers, there are pros & cons to owning and using one. The Pros include: Smaller Size - most Inkjet printers are relatively small and can fit in tight spaces. All-in-One Inkjet printers are a bit larger but are still typically smaller than a laser printer and much smaller than a standard office copy machine. Low Cost - Inkjet printers, overall, have lower sticker prices than laser printers. When the time comes, they are also cheaper to replace since it is often easier and cheaper to just buy a new printer if it breaks down. Cheaper Ink cartridges - ink cartridges for Inkjet printers have become cheaper in price in the last few years. Often ink is half the price of a laser toner cartridge. Easier to replace cartridges - replacing ink cartridges in an Inkjet printer is quick and easy to do. Excellent photo quality - Inkjet printers geared towards photo printing can produce amazing results, printing pictures with vivid colors, high contrasts, and virtually no pixelation. There is almost no need to go to a professional photo printer to have your photos printed. The Cons include: Less efficient ink use - Inkjet printers have a higher cost per page when it comes to printing, due to their rather inefficient usage of ink. When compared to Inkjet printers laser printers are much more efficient with their toner. Slower printing of large documents - printing a document with multiple pages takes a bit longer on an Inkjet printer than a laser printer. Messy to clean - cleaning an Inkjet printer is no easy task, nor is it a clean one. Inkjet cartridges can sometimes leak, and the ink can stain almost anything it comes in contact with, including clothes and hands. Overall, Inkjet printer is the most common choice for consumers. When visiting an electronics store, it is common to see a larger selection of Inkjet printers than laser printers. Nowadays, consumers look for good quality printing at the lowest initial cost and Inkjet printers fits that criteria. Hewlett Packard, Canon, and Epson have proven to be reliable brands with models that fit the needs of most consumers.

Some point on inkjet printer

- An ink-jet printer works through spraying minute dots of ink onto paper to create an image. The dots use a combination of different colors to create photo-realistic images.
- The advantage of using an ink-jet printer is that they offer excellent color output and are cheaper than laser printers.
- The disadvantage is that they are much slower than laser printers, particularly when printing text, and the ink cartridges have to be replaced quite frequently.

1.10   Plotter

A plotter is a printer designed for printing vector graphics. Instead of printing individual dots on the paper, plotters draw continuous lines. This makes plotters ideal for printing architectural blueprints, engineering designs, and other CAD drawings. Plotters were the first type of printer that could print with color and render graphics and full-size engineering drawings. As a rule, plotters are much more expensive than printers. There are two main types of plotters – drum and flatbed plotters.

Drum Plotter - A drum plotter is also known as Roller Plotter. It consists of a drum or roller on which a paper is placed and the drum rotates back and forth to produce the graph on the paper. It also consists of mechanical device known as Robotic Drawing Arm that holds a set of colored ink pens or pencils. The Robotic Drawing Arm moves side to side as the paper are rolled back and forth through the roller. In this way, a perfect graph or map is created on the paper. This work is done under the control of computer. Drum Plotters are used to produce continuous output, such as plotting earthquake activity.

Flatbed Plotter - A flatbed plotter is also known as Table Plotter. It plots on paper that is spread and fixed over a rectangular flatbed table. The flatbed plotter uses two robotic drawing arms, each of which holds a set of colored ink pens or pencils. The drawing arms move over the stationary paper and draw the graph on the paper. Typically, the plot size is equal to the area of a bed. The plot size may be 20- by-50 feet. It is used in the design of cars, ships, aircrafts, buildings, highways etc. Flatbed plotter is very slow in drawing or printing graphs. The large and complicated drawing can take several hours to print. The main reason of the slow printing is due to the movement mechanical devices.

UNIT-III

Positioning Ruler Guides

PageMaker allows you to use non printing guides to help you align and position objects on the page. The page already has margin guides -- a dotted or colored rectangle that represents the page margins you specified in the Document Setup dialogue box. You can add ruler guides to help position an image, text, etc. so they line up exactly.

Under the View menu, look to see if there is a checkmark next to the Snap to Rulers command. If not, click on it once, and when you check again, the checkmark will be there. When this is checked, the guide will be in line with a tick mark on the ruler.

Put your mouse pointer over the horizontal ruler, click and hold, and drag down onto your document to place a horizontal guide. Once you let go, you can move it by clicking and dragging. This process is the same for the vertical guide, and you can create as many guides as you need. You can simply use guides as visual aids, or you can enable the snap-to function by going to the View menu and making sure Snap to Guides is checked.

You can add additional pages in a specific place. Go to Layout, click Insert Pages..., and select the amount of pages desired and where you want to insert them.

To navigate through the different pages, just select the number of page to go by clicking the page number in the bottom left corner.

- Working with Text:-Now that our page is set up and has some guides, we need to add text and graphic elements. PageMaker allows you to create text in the document, or import it from an existing file.
- Creating New Text:-Select the Text tool from the Toolbox. Click on your document where you want your text, and begin typing. A text block is created automatically.

HINT: If you can't read your text as you start typing, go to the View menu and Zoom In.

For a new text block, simply click the cursor on another part of your document and start typing again.

- To move a text block, select it by clicking on it once with the Pointer Tool (choose the Pointer Tool from the toolbox). Once it is selected, click and hold, then move it to the new position and release the mouse button.
- To resize a text block, select it by clicking once with the Pointer. Click on the "handles" on the border of the text block and drag until you have the correct new size.

Placing (Inserting) Existing Text

Unlike most programs, PageMaker doesn't have an Insert menu. Even so, you can import text and graphics by using the Place command in the File menu.

1. Go to the File menu and select Place.

2. Navigate to your document and click Open. Your cursor turns into the Place icon . Click in your document where you'd like the text to be placed. Remember, you can always move and resize it.

You can also designate the size of your text block by clicking and dragging a square as you place the text.

Formatting Text

Modifying your text is done in a similar fashion as in Word. The most common characteristics you need to modify (such as font, size, alignment, etc.) are found under the **Type** menu. Make sure you're using the Text Tool, highlight the text you want to change and go to the **Type** menu.

Additional text options can be found in the **Utilities** menu in the **plug-ins** section (such as **Bullets and Numbering**, **Drop Caps**, etc.).

Graphics

To add a graphic to a PageMaker document, you must **Plac**e it, just like we placed text.

- Make sure the Pointer tool is selected and go to the **File** menu and select **Place** (if you have the Text Tool selected, the graphic will get placed as part of the text instead of independently).
- Navigate to the location of your image file.
- Click OK and the cursor will turn into the Place icon . Click In your document where you'd like the graphic to be placed.

You can move the graphic by clicking and dragging the graphic to its new location. To resize the object, use the Pointer tool to drag the handles.

HINT: To keep the graphic proportionate as you change the size, hold down the shift key on the keyboard as you drag one of the corner handles.

Wrapping Text Around a Graphic

Similar to Microsoft Word, PageMaker allows you to wrap text around a graphic, or have the text over/under the graphic.

- Make sure the object is selected. If you can't seem to select it, it could be because your text is on top of it and the graphic is behind your text. Click once on the text block, go to the **Element** menu, then to **Arrange**, and select **Send to Back**. This will send the selected element (in this case, the text block) to the back, so you can now select the graphic.
- Under the **Element** menu, select **Text Wrap**. You can choose different options for wrapping in the dialog box that appears.

Once you've added wrapping to an object, you'll see additional handles around the object. Use these handles to bring the wrapping closer or further from the object.

Shapes

To add a shape (such as an oval, rectangle, or hexagon) to your document, select the appropriate shape from the Toolbox and click, hold and drag to draw the shape on the page.

To shade your new shape, make sure it's selected and go to the Element menu and select Fill and Stroke. Fill refers to the color or pattern used for shading, while Stroke refers to the border around the shape. If you are planning to put text inside the shape, you should make sure the opacity of the shading color is light (around 30% or less).

HINT: To offset certain text blocks you can draw a shape around the text and shade it in. When you're finished, you might have to use the Send to Back command (Element menu, then to Arrange) to send the shape behind the text.

Frames

A Frame is a container for text or graphics that can be in a variety of shapes. You can turn any object you've created with the PageMaker drawing tools into a frame by selecting it then going to the Element menu, choosing Frame... then choosing Change to Frame.

You can also draw a frame with the Frame Tool, as described below.

Once you add a graphic to a new frame, that graphic frame cannot include text.

Creating a Frame

• Select the shape of the frame you want to use from the Toolbox. Click on the document where you want the frame to be located and drag until you are satisfied with the size. The frame is now ready to receive content.

• To add text, click on the Text Tool and then click

• Inside the frame. Start typing your text and it will wrap accordingly. You can also use the Place command (File menu), to put a graphic or text inside a frame. The text takes the particular shape you have selected. (Change screenshot)

Working with the Master

If you want the same layout (number of columns, etc.) on several pages, you can set up the **Document Master** and the pages will follow that layout. You can have more than one Master -- for example, one Master with two columns and one with three. To access the Document Master, click on the **L** and **R** icons in the lower left of your window for a two sided document (for a single page document, make sure you set up the correct side). If you want to make simple changes for your document, such as margins and page orientation, select the **Document Setup** from the **File** menu.

Columns control the flow of your text on each page. **Autoflow** controls the flow of the text throughout the document. While you can change the number of columns or set the Autoflow on any individual page, if you want the same look throughout the document, do these steps in the Master.

Columns

Go to the **Layout** menu and choose **Column Guides**.

This command creates a specified number of columns of identical widths, fitting them within the margins of the page. If you want PageMaker to automatically reposition existing text or graphics to align with the revised column setup, check the box next to Adjust Layout in the Column Guides dialog box.

AutoFlow

Go to the **Layout** menu and choose **Autoflow**.

If you are placing a long document, you might want it to flow automatically into the necessary number of even pages and/or columns. This can be accomplished using the **Autoflow** feature of PageMaker.

If Autoflow is checked on the Document Master, any text you place will automatically flow into the columns and/or pages that you have in place and new pages will be added if necessary. However, if Autoflow is only checked on an individual page, it won't flow onto the next page and it won't create more pages, you would need to do this manually.

Creating a Booklet

You can also create booklets with Adobe PageMaker. Before you start, you should think about what you would like your booklet to look like and how long you want it to be. PageMaker can create five basic booklets

• 2-up Saddle-Stitch: made up of sheets of paper folded in half and then stapled in the fold.

• 2-up Perfect Bound: made up of a series of booklets that are bound along the spine. It is intended for large documents, 20 sheets of paper or more, which none of the other formats can accommodate.

• 2,3,or 4-up Consecutive: made up of multiple pages on one sheet folded in an accordion-like style.

We will create an 8 page 2-up Saddle Stitch Booklet.

To start:

- Create a new document by going to the File menu, and selecting New.
- In the Document Setup dialog box divide the dimensions of your paper in half.
- Now select the number of pages you will require.

HINT: There are four pages to every sheet of paper (including the front and back of the page).

Now type or draw the information you would like on each page. Once you have all the information as you like it:

- Go to the Utilities menu select Plug-ins and then Build Booklet.
- Select 2-up Saddle Stitch I.
- Insert any blank pages if your document is an odd number (PageMaker should automatically create them).
- Select OK.

Printing

Go the **File** menu and click on **Print**. You can select All or a range of pages. If you want contiguous pages, choose range then use a dash (1-3); or for noncontiguous, use a comma (1,3,5).

About the control palette:

In the PageMaker there are 3 types of control palette. To hide and show the control palette click on the window menu the click on the hide / show control palette option or to show and hide the control palette of text press **Ctrl +'.** They are as following:

Control palette of text

Character:

1. Font button: This button is used to change the font face click over the font button then choose any font face as you need.

2. Font Size: This button is used to change the font size as you like Click over the font size button and choose any size as you need.

3. Track: This option is used to change the font track as Normal, loose, very loose tight and very tight

4. Kerning option: This button is used to increase or decrease the character spacing horizontally in 0.01 ranges.

5. Normal (Ctrl +Shift + Space): To change the font style into normal.

- Select the font which style you want to change into normal.
- Click over the normal button or press **Ctrl + Shift + Space**.

6. Bold (Ctrl + Shift + B): This button is used to change the normal font into bold (blackness).

a. Select the font and click over the bold button or press **Ctrl + Shift + B**.

7. Italic (Ctrl + Shift + I): This option is used to change the normal text into italic.

a. Select the font and click over the italic button or press **Ctrl + shift + I**.

8. Reverse (Ctrl +Shift+ V): This button is used to change the font in to white color.

a. Select the text and choose the Reverse button or press the **Ctrl + Shift + V.**

9. Strikethrough (Ctrl + Shift + /): This tool is used to draw a horizontal line through the middle of the selected text.

a. Select the text and click over the streak thru button or press the **Ctrl + Shift+ /.**

10. Small caps: This option is used to change to selected font caps as small, capital and little grater capital.

a. Select the font and click over the small caps button.

11. Superscript / Subscript: This button is used to change the normal text in to supper and sub script (the text appear little upper then normal text is called supper script and the text which appear little below the normal text is called sub script).

- Select the text, which you want to change in to supper script or sub script.
- Then click over the supper script or sub script button, as you need.

12. Leading button: This button is used to change the text leading (leading is the vertical space between two lines)

- Select the text line which leading you want to change.
- Click over the leading increase or decrease button, as you need.

13. Horizontal Scale: This option is used to change the character width size, as you need.

- Select the text which width you want to change.
- Choose the width size in present, as you need.

14. Baseline shift option: This button is used to move the selected text little below or above the normal line or specify the vertical position of text relative to the baseline

a. Select the text and click over the up and down baseline button.

Paragraph

Align text:

- **Align Left (Ctrl + Shift + L):** Change the text aligns text left edge of the text evenly. The left alignment text is commonly used in personalized letter informal news and body text in many books.
- **Align center (Ctrl + Shift + C):** This alignment is used to position the text or paragraph in the center of the page or between the left and right edge of the page. This alignment is basically used to heading for newsletter and brochure and heading of book.
- **Align Right (Ctrl + Shift + R):** This alignment is used to position the text or paragraph on the right edge of the page it is basically used for to write date and time and so on.
- **Justify (Ctrl + Shift + J) /Force justify (Ctrl + Shift + F):**

This alignment is used to justify (adjust the vertical text of both side of the paragraph) the paragraph edge.

Steps:

a. Select the paragraph and choose the align style as you need. From the control plate tool or from the Type menu choose alignment or press shortcut key.

E. First indent: Specify the amount of indent for the first sentence in a paragraph.

F. Space-before and space-after options: Specify the amount of space to insert above or below the selected paragraphs.

G. Grid-size option: Specify the point size of the text grid to use when Align to Grid option is on.

Steps:

a. Select the paragraph and from the control panel tool & click on these button as you need.

Position option: This button is used to displays the X and Y position of the ruler, where the object is located.

Sizing option: Specifies the width and height of the selected object we can change the size of the object by changing the number of this button.

Rotating option: This button is used to Rotates the selected object around the reference in different degree as you specify.

Skewing option: Skews objects horizontally -85 to 85 degrees in relation to the selected reference point.

Horizontal-reflecting button: Reflects the selected object vertically, and then rotates the object 180 degrees so it appears reflected horizontally.

Vertical-reflecting button: Reflects the select object vertically.

About the color

To show and hide color palette click on the window menu choose hide / show color command or press **Ctrl + J** from keyboard.

To apply the color on the text:

Steps:

- Type your text.
- Select the text (by text tool)
- Then click on anyone color as you like.

To apply the color on the object:

Steps:

- Draw anyone object.
- Select that object (by pointer tool)
- Press ctrl + J.
- Click on the fill color icon on the color palette.
- Click on the color which you want.

How to insert picture?

Steps:

- Click on the file menu.
- Click on the place command or press ctrl + D from keyboard.
- Choose anyone picture which you like.
- Click on ok button.
- Finally drag your mouse.

After inserting picture:

To crop your picture:

Steps:

- Select the picture.
- Press ctrl + K from keyboard.
- Click on high resolution option.
- Click on ok button.
- Select crop tool.
- Now drag your mouse on the picture from the selection point.

How to insert picture in the star shape?

Steps:

- Click on file menu.
- Click on place command or press ctrl + D from keyboard.
- Choose anyone picture which you like.
- Click on open button.
- Now drag your mouse.
- Draw a star shape (don't fill the color)
- Place that star shape on over the picture.
- Select that picture and auto shape at once.
- Press ctrl + 6 from keyboard.

To go first condition or unmask

Press ctrl + shift + 6 from keyboard.

File menu:

Open (Ctrl +O):

This option is used to open the exiting publication file, which we have already saved.

Revert:

Removes all changes to the active document or publication since you last save it or removes the entire unsaved document from our active document.

Steps:

- Create your document and draw any object then save it.
- Now draw any other objects don't save it.
- Click on file menu.
- Click on revert command.

Place (ctrl + D)

This option allows us to import text, graphics, and spreadsheet or database files into the active publication, which are created in other program.

Steps:

- Click on file menu.
- Click on place command or press **Ctrl + D** from keyboard.
- Then its dialog box will appear.
- Choose anyone file of picture.
- Finally click on open button.
- Drag the mouse over the page where you want to put.

Acquire:

This acquire command allows us to select twain image (such as a scanner) and to take image directory from the source and place them in PageMaker.

Steps:

- Join your scanner and insert the image into the scanner.
- From the file menu choose Acquire and Acquire image.
- Then save dialog box will appear. Type the file name and choose directory where you want to save.
- Then click overt the save button.
- After a few second scanner program will be active.
- In that scanner's dialog box click over the preview button.
- Then after a few second when your image will appear in full size then select it and click on the scan button.
- Finally when scanning finish then drag the mouse on the page.

Export: The export command is used to save the elements of your PageMaker document is one of these formats as an adobe portable document, HTML, picture and text format.

- Make your file.
- From file menu choose Export then its any items. And follow the steps, as you need.

Document setup (Ctrl + Shift + P): This option is used to set the document after creating document with out affecting that document. And we can use this command to create a document as default. For more see the steps of "creating new documents" topic.

Preference (ctrl + K): See the "DISPLAY AND CHANGING THE RULER MEASURMENT" topic.

DISPLAYS AND CHANGING THE RULER MEASURMENT:

If ruler is not displayed in the document window you can active them by pressing **Ctrl+ R** or from the view menu select show/hide Ruler. The default measurement system for the ruler in inches you can change the any of several system choices.

1.   From the **FILE MENU** choose **PREFERENCE GENERAL** to display the preference dialog box or double click on the pointer tool.

2.   Then choose the measurement unit and click over the ok button.

- Inch: This is the default measurement system.
- Decimal inch: The ruler display by 10 tick marks where the page view allows to the inch and values are created in decimal.
- Millimeters: 25.4 millimeters = 1 inch.(it is the best measurement to cerate any design in PageMaker.
- Picas: There are 12 pointes to the pica and 6 picas to the inch.
- Cicero: A Cicero's is slightly larger then a pica there is 5.58 Cicero's in to an inch.

Link manager:

The link manager command lets you view or modify links for single and multiple objects through out a publication.

Steps:

- Insert the picture.
- Click on file menu.
- Click on link manager command.
- Then its dialog box will appear.
- Click on "info" button.
- Choose anyone picture.
- Click on open button.
- Click on ok button.

Document setup:

Lets you to change the setting for a publication first defined when you choose new such as page size, margins, number of pages page numbering and applied to the document master page.

Print (ctrl + P)

This command Prints a publication or book on a printer or to a disk as a postscript (letter) file. The printing options available depend on the printer you are using.

Preference

General (ctrl + K)

This command controls various setting that applies to publication wide behavior such and viewing text and graphics.

Layout menu:

Sort pages:

Lets you move pages from one position to another in the active publication by arranging thumbnail representation of your pages and PageMaker reorder and renumbers your pages based on the changes you make.

Steps:

- Click on layout menu.
- Click on sort command.
- Select the page which you want to arrange.
- Drag the selection page or publication to the another location where you want
- Click on ok button to change the page order.

Go back (Ctrl + Page up) and Go Forward (ctrl + page down):

Lets you go to the next page in the sequence (step by step) of pages you have viewed since you opened a publication and lets you return to the previous page. This option is used to go back and forward of the page.

Column guides:

This command is display the column guides dialog box that lets you inter the number of column for a page. The column guides command automatically creates equal width between the column you can change this width by clicking the column guided and drag them. Specify the number of columns and the amount of space between the columns on the page.

Steps:

- Click on layout menu.
- Click on column guides option.
- Then its dialog box will appear.
- Enter the number of columns how many columns you want to insert columns on the pages and the space you want to insert between columns.
- Click on ok button.

Copy Master Guide:

Removes your column's guide lines and makes like master page.

Steps:

- Click on the layout menu.
- Click on the copy master guide command.

Auto flow:

When checked text flows into available columns until there's no more text to place page are added to the end to the publication it necessary or This command is used to set the auto flow the text in the page when you click on the page. If you tick in this command you need not to drag the mouse in each page although you have massage more then on page.

Steps:

- Type some text.
- Click on layout menu.
- "On" the tick mark on the auto flow option.
- Click on the over flow text button by pointer tool
- Now drag your mouse on the next page.

Go to page (Ctrl + Alt + G):

This command lets you to turn in another page or master page in the active publication. This option is an easy way to go the specify page by jumping at once from any page.

Steps:

- Click on layout menu.
- Click on go to page command or **Ctrl + Alt + G** from keyboard
- Then go to page dialog box will appear.
- In this dialog box type the number of page where you want to go.
- Click on ok button or press enter key from keyboard.

Insert page:

This option is allows us to insert the pages in your active file after or before the current page as you specify. Let you add the page to a publication before or after the current page.

Steps:

- From the layout menu choose insert pages option.
- Then its dialog box will appear in this dialog box type the number of page how much you want to insert.
- Then choose after or before option finally click over the insert button.

Remove page:

This command lets you to delete the designed range of page numbers in a publication including the text and graphics on those pages.

Steps:

- Click on layout menu.
- Click on remove page option.

- Type the range of pages how many pages you want to remove.
- Click on ok button.

Edit menu:

Paste multiple:

This command lets you to make duplicate an object within a publication either by coping and pasting it using drag and drop or by using the more powerful multiple paste features.

TIPS: Use edit > paste multiple to paste an object copied from one page on the page to which it is pasted. Make sure the vertical and horizontal offsets are set to zero when you click on ok in the paste multiple dialog box.

Steps:

- Draw any object (like line or anyone)
- Copy that line or object.
- Click on edit menu.
- Click on "paste multiple" command.
- Now set the pasting properties (how many object you want to paste and ser the space between tow object in this dialog box)
- Click on ok button.

Insert object:

This option is use to insert an object from another application into the current publication or PageMaker which is not available in PageMaker. Lets you insert an OLE object server application in which you create an object which you create an object which is then pasted as an ole-embed object into the current publication.

Steps:

- Click on edit menu.
- Click on insert object command.
- Choose anyone application such as bitmap.
- Click on ok button.
- Now draw any picture.
- Finally close the Ms-paint.
- Click on the save button.

Edit story

Opens the story editors to show the story currently selected or opens a new story window if no text is selected it is on / off command or this command is used to edit the mistake spelling and give the suggestion as possible spelling. When you choose this command you switch to the story view and you can see only on story at a time.

Steps:

- Click on edit menu.
- Click on edit story command or press ctrl + E from keyboard.
- Type some text.
- Press Ctrl + E.
- Now drag your mouse.

How to check spelling and grammar?

- Type the document and from the edit menu choose story.
- Then edit story page will appear
- From this page choose utility menu then choose spelling or press **Ctrl + L** then its dialog box will appear.
- In this dialog box click over the start button then it will show the possible correct spelling.
- From this list of possible spelling list choose correct spelling and click over the replace button.
- Finally close the dialog box and from the edit menu choose edit layout option or press Ctrl + E.

TYPE MENU

- Font
- Size

Leading

Sets the space measured in points between consecutive (coming one after another) type, leading can be selected for a range of text. Use other command to set leading values ranging from zero to thirteen hundred (1-1300) points.

Steps:

- Type long text.
- Select that text.
- Click on type menu.
- Click on leading command.
- Now set the leading properties.

Horizontal scale:

Lets you control the proportional width of characters for a selected range of text.

Use the other commands to specify a custom width (from 5% to 250%) for the selected text or the next the typed

Steps:

- Type the text.
- Select the text.
- Click on type menu.
- Click on horizontal scale command.

- Now set the properties.

Character (Ctrl + T):

Lets you control the font name, size and other attributes for the selected range of text, part of a default or part of a style or This option is used to change the character style as font, Size, Leading, Position, Track, Font color, tint, Track, case etc.

Steps:

- Type some text.
- Select the text.
- Click on type menu.
- Click on character command or press **Ctrl + T**.
- Now set the different types of font setting like color, bold, italic, underline, horizontal scale, leading etc.
- Finally click on ok button.

Paragraph (Ctrl + M)

Sets the paragraph level attributes for a single paragraph for text placed into PageMaker.

Steps:

- Type the text.
- Select that text.
- Click on type menu.
- Click on paragraph command or press **Ctrl + M.**
- Now set the paragraph setting like left, right, center, justify, before, after etc.
- Click on ok button.

Indent and tab (Ctrl + I):

This command open the indents tabs dialog box to set tab stops for your document. You can also set the first line, left and right indents and paragraph by tab setting from this dialog box. You can use indent tabs for a selected range of text.

Steps:

- Type the text.
- Select the text.
- Click on type menu.
- Click on indent and tab command or press ctrl + I from keyboard.
- Now set the margin and first line.

Hyphenation:

The trade of between hyphenation and spacing in justified text in that the closer you come to ideal specify between letters and words Or This option is used to insert the hyphenation (a short line) at the right edge of the text in the end of the line.

Steps:

- Select the paragraph and Click on type menu.
- Click on hyphenation command.
- Click on "on" option.
- Click on ok button.
- Now start to type your text.

UNIT-IV

<div style="border:1px solid #000;">**MULTIMEDIA**</div>

Introduction to Multimedia

The word 'multimedia' comes from the Latin word 'multus' which means 'numerous' and media which means 'middle' or 'center'. In computer terminology multimedia means 'multiple means' by which information is stored, transmitted, presented or perceived.

Definition

> Digital multimedia is defined as the integration of up to six media types in an interactive, color computing environment.-Fetterman and Gupta.
>
> Multimedia is any combination of text, graphic, art, sound, animation and video delivered by any electronic means.- Vaughan.
>
> Multimedia is an interdisciplinary application-oriented technology that capitalizes on the multi-sensory nature of humans. (Humans are multi-sensory as they can communicate with sight, hearing, touch, smell, and taste)- Minoli and Keinath.

The elements of multimedia are as follows:

- Text (sources of text can be books, letters, newspapers etc.)- in computer alphabets (a-z), numbers and special characters are used to present information in text form. Text is made up of any written material that you view or stored on a computer.
- Images (photographs) and graphics (e.g. charts, maps, logos, sketches etc.)- Graphics images are other important and interesting components of multimedia. Images are photographs and pictures composed of a collection of pixels.
- Sound (e.g. radio, gramophone records and audio cassettes)-the sound is a repeated pattern of pressure in air and microphone converts the sound wave into an electrical wave. In other words sound is a form of energy just like electricity and light.
- Video and animation (e.g. TV, video cassettes and motion pictures and motion videos etc.)- a video is collection of fast series of frames which gives the illusion of the video being in motion. Animation is a simulation of movement created by displaying a series of pictures, or frames.

Multimedia Presentation

A multimedia presentation is basically a digital show whose content is expressed through various media types like text, image, sound, video etc. The end users who use or watch the presentation are called viewers or the target audience. Before presentation can be viewed, it has to be created. The process of creation of presentation using multimedia elements is known as multimedia production. The professionals or developers who prepare multimedia presentation are called multimedia author.

Characteristics of a multimedia presentation

- Use of multiple media: multimedia presentation uses multimedia elements such as text, image, graphics, video, animation etc.

Text, image (still pictures from digital camera and scanner), graphics (sketches, diagrams and portraits) are called static multimedia elements.

Motion picture recorded on film (combination of audio and video), motion video recorded on magnetic media), audio, animation (display artificial scenarios) are called time-varying multimedia element.

A multimedia presentation contains at least one static element and at least one time-varying element.

- Non-linearity: non-linearity means user can instantly navigate to different parts of the presentation and display the frames in any way he/she chooses, without considerable delay.

- Interactive: non-linearity is possible when user interactivity is supported by presentation. A set of interactive elements such as buttons, menu, and hyperlink should be provided so that user can view the part of presentation in which he is interested.

- Digital representation: audio and video cassette players use media recorded on magnetic tape which create consider delay to view part of the presentation because these are sequential access devices. If presentation is stored in a computer using random storage device such as hard disk, and compact disk part of presentation can be accessed without delay. If presentation is digitally stored we can use softwares to manipulate presentation, which is a big advantage over storing presentation in analog format.

- Integrity: there may be several media types present and playing simultaneously, they must be part of a single entity called presentation then it is known as integrity.

Needs and usage of Multimedia

Multimedia has found extensive applications in various fields. Following are some of the main areas where this technology is applied:

Home entertainment: it includes computer based games for kids, interactive encyclopedia, story-telling and cartoons, Audio and video on demand (interactive television), special effects in films.

Education: using multimedia learning packages and simulation of lab experiments can be made. Different aspects of the course curriculum which cannot be explained or grasped easily through simple text and images could be presented through video clips, animation, 3Dmodeling, audio annotations etc.

Industrial Training: it includes computer based training (CBT) packages for employees, both technical and marketing.

- Many people can use each of these courses.
- They do not need to spend time away from office.
- People can learn at their own speed.
- Full time instructor is not required.
- Because best instructors could be used to make these CBTs they could be of a high quality.

Information Kiosks: theses are devices where information is accessed through a touch screen and viewed on a monitor. Examples can include multi-lingual product catalogs for placing orders, or for dispensing important information such as train timings at a railway station.

Corporate presentation: corporate presentation for emphasizing the salient feature and activities of a company, its products, its business partner like suppliers an retailer, can be built by incorporating multimedia elements along with textual descriptions.

Business: items difficult to stock like glass utensils, industrial equipment, etc. can be displayed to buyer by company sales representative through multimedia presentation. Real estate agents can display interior and exterior of buildings along with necessary information like dimension and price.

Tourism and travel industry: travel companies can market packaged tours by showing prospective customers glimpses of the places they would like to visit, details on lodging, flooding, special attractions etc. Hotel owner can use multimedia to display details of facilities offered at various hotels at different locations. Museums and art galleries may provide digital versions of their specimens for public viewing, exhibition, auction, etc.

Electronic shopping: customized presentation of the product can be delivered to customers. If customer likes the product he can follow hyperlink to place order for the item on-line.

Medicine: multimedia technologies can be used to prepare high-quality magnetic resonance 3D images of human bodies and practice complicated surgical procedures. Archives of X-ray images, CT scans, Ultra-sonography images, etc. will enable doctors to pride better consultations, and could serve as an expert system. Multimedia is useful in Tele-medicine.

Engineering Applications: multimedia is very useful in designing mechanical, electrical and electronic parts through the use of CAD/CAM.

Content Based Storage and Retrieval System (CBSR): searching text and number based information is quite common. Matching of a fingerprint from police records to identify a criminal, finding movie based on movie clip these types of works are known as Content Based Storage and Retrieval System (CBSR). .

Concept of Plain and Formatted Text

The flexibility and ease of use of the textual medium makes it ideal for learning. We need text to design labels for title screen, menus and buttons etc. words and symbols spoken or written are most common system of communication. They deliver the most widely understood meaning to the greatest number of people- accurately and in detail. Because of this they are vital elements of multimedia menus, navigation system, and content.

Attributes of Text:

- Typeface: typeface is a family of graphic characters that usually includes many type sizes and styles.
- Font: a font is a collection of characters of a single size and style belonging to a particular typeface family.
- Font style: typical font styles are bol-face and italic, underline and outline are style attributes.
- Kerning: kerning is the spacing between character pairs.
- Tracking: it is spacing between characters.

Text can be of various types:

Plaintext consists of fixed sized character having essentially the same type of appearance. **Formatted text** where appearance can be changed using font parameters, and **hypertext** which can serve to link different electronic documents and enable the user to jump from one to other in a non-linear way.

Text can be inserted in an application program using keyboard directly, alternatively text can be copied from another pre-existing file or application and pasted into the application. Nowadays we also generate text automatically from the scanned version of a paper document or image using an Optical Character Recognition System (OCR).

Text can be compressed to generate smaller size file without any loss, using compression algorithm.

Text can be stored into a number of file formats each requiring its own specific application to open and modify the contents.

Plain Text

Plain Text Refers to textual data in ASCII format. Plain text is the most portable format because it is supported by nearly every application on every machine. It is quite limited, however, because it cannot contain any formatting commands.

Internally text is represented via binary codes as per the ASCII table. The ASCII table is quite limited in its scope and a new standard has been developed to eventually replace the ASCII standard this standard is called **Unicode** standard and is capable of representing international character from various languages throughout the world.

RTF

The **Rich Text Format** (often abbreviated **RTF**) is a document file format developed by Microsoft in 1987 for cross-platform document (including text and graphics) interchange. Most word processors are able to read and write RTF documents.

Members of the Microsoft Word development team, Richard Brodie developed the original RTF in the middle to late 1980s. Its syntax was influenced by the TeX typesetting language. The first RTF reader and writer shipped in 1987 as part of Microsoft Word 3.0 for Macintosh, which implemented the version 1.0 RTF specification.

All subsequent releases of Microsoft Word for the Macintosh and all versions of Microsoft Word for Windows have included built-in RTF readers and writers which translate from RTF to Word's .doc format and from .doc to RTF.

The intellectual property of the format belongs to Microsoft who maintains the format to this date; as of March 2008 it is up to version 1.9.1.

RTF file is useful format for basic formatted text documents such as instructions manuals, resumes, letters, and modest information documents. These document support bold, italic, underline text formatting. Left, right, center justification is also supported. Font specification and document margins are also supported.

HTML

HTML, stands for HyperText Markup Language, is the predominant markup language for web pages.

It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists etc as well as for links, quotes, and other items.

It allows images and objects to be embedded and can be used to create interactive forms.

It is written in the form of HTML elements consisting of "tags" surrounded by angle brackets within the web page content.

It can include or can load scripts in languages such as JavaScript, which affect the behavior of HTML processors like Web browsers, and Cascading Style Sheets (CSS) to define the appearance and layout of text and other material. The use of CSS is encouraged over explicit presentational markup.

Conversion of text from one format to other format

1. Converting .doc to text file: open the file of Microsoft word and choose file->save as command from file menu then select text from save as type combo box..

2. Converting text to .doc file: start Microsoft word select file->open then select files as type combo box and choose text file then select the text file you want to open.

When the time of saving file comes, select file->save as command from file menu then select word document from save as type combo box..

3. Converting .doc to RTF file: open the file of Microsoft word and choose file->save as command from file menu then select Rich Text Form from save as type combo box..

4. Converting RTF to .doc file: start Microsoft word select file->open then select files as type combo box and choose Rich Text Format then select the RTF file you want to open.

When the time of saving file comes, select file->save as command from file menu then select word document from save as type combo box..

5. Converting .doc to HTML file: open the file of Microsoft word and choose file->save as command from file menu then select Web Page from save as type combo box..

6. Converting HTML to .doc file: start Microsoft word select file->open then select files as type combo box and choose Web Page then select the HTML file you want to open.

When the time of saving file comes, select file->save as command from file menu then select word document from save as type combo box.

Importance of graphics

The introduction of the apple Macintosh computer and the Microsoft windows program changed the way we worked with computers. Using a mouse and a desktop; we click on icons and drop down menus, drag folder and resize windows. We are accustomed to working with graphical images on the screen and, in fact, expect to see them. Graphics such as drawings and photographs are integral to

multimedia titles. Visualization is an important part of the communications process, and graphical images can be used to add emphasis, direct attention, illustrate concepts and provide a background for the content.

It is said that a picture is worth of thousand words of text.

- Pictures, photographs and 3D pictures
- Background
- Button
- Charts
- Flow charts
- Organization charts

Graphics are used in various field of our life such as:

- Web Designing
- Education
- Business
- Entertainment
- At Home
- Medical and Engineering
- Research

Generally we use graphics for web designing to fulfill various type of need for many person of different type of field such as Education, Business, Entertainment, Medical and Engineering, Research etc. So we are going to explain importance of graphics in Web Designing mainly.
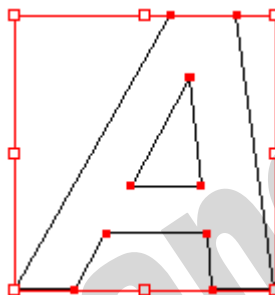
Draw type (vector) and bitmap graphics and Difference between the two

There are two categories of graphics: draw-type and bitmaps. Draw-type graphics, also called vector graphics, represent an image as a geometric shape made up of straight line, ovals and arcs. When a line is drawn, a set of instructions is written to describe its size, position, and shape. If more than one line is drawn, it has a precise relationship to the other parts. If a change is made, say, in the size of the circle, the relationship between the circle and the lines stays the same as the original graphics. The ability to resize and rotate a graphic without distortion is a major advantage of draw-type graphics. Another advantage is their smaller file size. Because these graphics are stored as sets of instructions the file sizes can be significantly smaller than bitmaps. One of the drawbacks of the draw-type graphics is that the more complex they are, the larger the file size and the longer they take to appear on the screen. Another disadvantage is that they cannot display photorealistic quality.

A bitmap represents the image as an array of dots, called pixels. The screen is made up of a grid, and each part of the grid is a picture element. Color information, called color dept, is recorded for each pixel. Depending on the number of colors used, a bitmap file can be relatively small.

Bitmap Image: Vector Graphic:

Graphic image quality

Because draw-type graphics are displayed using a set of instructions that define a line, they are not as discrete as bitmaps. The quality of the image is therefore lower, creating a circle with a draw-type program allows you to specify only one color for the entire circle, but creating a bitmap circle allows you to change the color of every pixel in the circle. Thus the bitmap can more photorealistic. The trade-off is that bitmap graphic files are larger than vector graphics file. File size is a function of the image size and the color depth.

IMAGE

An **image** is a visual representation of something. In information technology, the term has several usages: 1) An **image** is a **picture** that has been created or copied and stored in electronic form. An **image** can be described in terms of vector graphics or raster graphics.

Attributes of Image

Size: The digital size of an image, measured in kilobytes (K), megabytes (MB), or gigabytes (GB). File size is proportional to the pixel dimensions of the image. Images with more pixels may produce more detail at a given printed size, but they need more disk space to store and may be slower to edit and print.

For instance, a l-by-1-inch, 200 dpi image contains four times as many pixels as a l-by-1-inch, l00-dpi image and so has four times the file size. Image resolution thus becomes a compromise between image quality (capturing all the data you need) and file size. Another factor that affects file size is file format-- due to varying compression methods used by GIF, JPEG, and PNG file formats, file sizes can vary considerably for the same pixel dimensions. In the same way, color bit-depth and the number of layers and channels in an image affect file size.

Color: Think of a channel as analogous a plate in the printing process, with a plate applying each layer of color. In addition to these default color channels, channel called alpha channels, can be added to an image for storing and editing selections as masks, and spot color channels can be added to add spot color plates for printing.

An image can have up to 24 channels. By default, Bitmap-mode, grayscale, duotone, and indexed-color images have one channel; RGB and Lab images have three; CMYK images have four. You can add color channels to all image types except Bitmap mode images.

Depth: Bit depth--also called pixel depth or color depth or only depth-measures how much color information is available to display or print each pixel in an image. Greater bit depth (more bits of information per pixel) means more available colors and more accurate color representation in the digital image.

For example, a pixel with a bit depth of 1 has two possible values: black and white. A pixel with a bit depth of 8 has 2^8, or 256, possible values. And a pixel with a bit depth of 24 has 2^{24}, or roughly 16 million, possible values. Common values for bit depth range from 1 to 64 bits per pixel.

Image resolution: The number of pixels displayed per unit of printed length in an image, usually measured in pixels per inch (ppi). In Photoshop, you can change the resolution of an image; In Photoshop, image resolution and pixel dimensions are interdependent. The amount of detail in an image depends on its pixel dimensions, while the image resolution controls how much space the pixels are printed over. Now let us see an example, you can modify an image's resolution without changing the actual pixel data in the image--all you change is the printed size of the image. On the other hand, if you want to maintain the same output dimensions, changing the image's resolution requires change in the total no. of pixels. Increasing the resolution of lower resolution image only spreads the original pixel information across a greater no. of pixels; it rarely improves image quality.

Relationship with Image size, color depth and file size

Image size- is size of image in pixel or in inch (72 pixels is normally 1")

Color depth- is range of colors available for pixel.

File size in bytes= (Image size in pixel **X** color depth in bit)/8

Image size in pixel	Screen size	Color depth in bits	Number of available colors	File size in bytes (Approx.)
640x480	Full screen	8	256	300,000
320x240	Quarter screen	8	256	77,000
1024x768	Full screen	24	16.7 million	2,400,000

Sources of Graphic Images

Clip art, stock photographs and fine arts: some program com with clip art and stock photographs, but these are often limited or of poor quality. Photodisc, a leader in digital stock images, provides more than 50,000 photographs that can be purchased on CD.

Video images: pictures from video sources such as VCRs, video discs and video camera can be transferred to a computer using video capture card.

Still images: digital cameras can be used to capture images in a digital form are useful in generating graphics. You can take picture as you would with any still camera. Then the camera is connected to a computer and the images are transferred from the camera to the computer.

Scanner Images: Using scanner you can scan pictures from a book, magazine etc. you can adjust color, brightness, contrast. You can crop, zoom and rotate image.

Screen Capture Program: whatever graphics appear on screen can be captured in both Mac and windows computers.

Software for creating and editing graphics

Graphics programs can be categorized as drawing, paint and image-editing programs:

1. Drawing programs- these provides facility for free hand drawing as well as geometric shapes and are useful in creating designs where precise dimension and relationship are important.

E.g. CorelDraw, adobe illustrator for 2d drawings, AutoCAD for 2d and 3D drawings

2. Paint programs-theses are the programs who provide the tolls brushes, pens, spray paint used by artists e.g. paint shop pro, Microsoft paint

3. Image editing programs- theses are useful for making changes to existing images, such as manipulating the brightness or contrast, or applying textures or patterns.

E.g. Photoshop, photo paint

Features of Graphics Programs

Following are the list of features available on hig-end graphics programs.

Type of graphics program- the program is primarily a drawing, a paint, or an image-editing program. Many programs allow to create both draw and paint-type graphics.

Cross-Platform compatibility- the program comes in both windows and Mac version and/or is able to create graphics that can be used on both the ma and windows platforms.

Graphics file support-the program allows saving and/or converting graphics images using several of the popular file formats such as TIFF, BMP, PCX, PICT, JPEG, and GIF.

Layers- the program provide layering of object. Different objects can be stacked in layers. Layers can be made visible/invisible, current etc.

Image enhancement- these programs have brush, airbrush, text and line tools, user defined brushes and the ability to preview the brush size; and an option to paint with texture and pattern.

Selection tools- wide range of selection tools are provided.

Color adjustment- allows adjustment of color of image using color models.

Image manipulation the program can stretch, skew and rotate an image.

GIF format:

The graphics interchange format (GIF) was invented in 1987 by CompuServe to allow images to be displayed. This format allows for 256 colors, compressions, interlacing and animation. This is very powerful form, suitable for various types of images. GIF uses LZW (Lampel Zev Welch) compression algorithm. There are two GIF standards are available GIF87a and GIF89B. The GIF89a allow multiple images to be included in a single file.

Advantage/Feature:

- Very powerful format
- It provides the option to specify how many number of colors will be saved, which to decrease the size of an image.
- Files are compact it uses transparency concept and supports streaming of image. You can get rid of rectangular border of image.
- It allows interlacing and animation.
- Uses a non-lossy compression technique.
- Suitable for on-line transmission and interchange of graphics data.
- GIF file format is independent on computer hardware and operating system.

Disadvantage/Limits:

- Decompression is slower than RLE.
- It uses only palette colors and has no provision for 24-bit RGB color files.
- It has no provision for 4 or 8 bit gray scale and no grayscale or color correction data.

PCX format:

Also known as PC paint brush file format. This format was created by ZSoft (Zsoft packbits format). This is widely used for storage of images. PCX supports 256 colors. The current version of PCX format has the ability to store 24 bit color images. It is widely used on scanners, fax and softwares like Photoshop and PageMaker. It supports index and RGB color model.
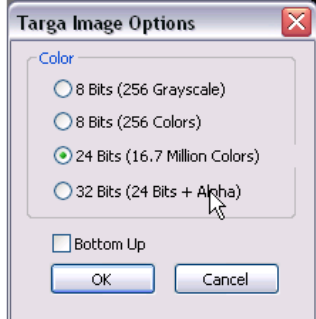
·Bitmaps may be black and white, 16 colors, grayscale (8-bit), paletted (8-bit), or RGB color (24-bit).

·Run-length encoding (RLE) compression is supported, and the maximum image size is 64,535 x 64,535 pixels.

·These files may contain one, two, or four color planes.

BMP format:

A bitmap file (BMP) contains an exact pixel by pixel mapping of an image, which can then be reconstruct the by rendering application on the display surface on an output device. It can't be compressed. It image is resized quality of image drops drastically. BMP files are Microsoft Windows

bitmap files. These files can be created in and read by Windows Paint; all Windows applications can import them.
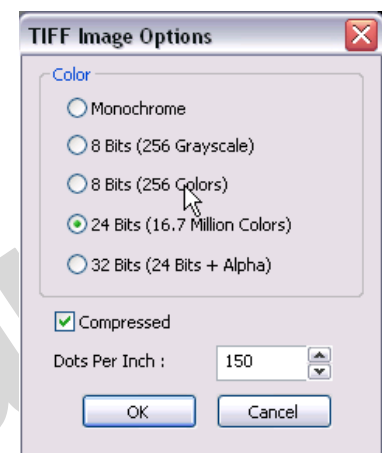
TIFF format:

It is acronym for tagged image file format. Almost every graphics application can read and write TIFF files. There are many variations of TIFF, considering that TIFF supports six different encoding routines and three different image modes: black and white, grayscale, and color. Uncompressed TIFF images may be 1, 4, 8, 24,32 bits per pixel. TIFF images compressed using the LZW algorithm may be 4, 8, or 24 bits per pixel. TIFF files can save RGB, CMYK, and Lab color mode information, but not duotones.

Advantage/Feature:

TIFF applies lossless compression of file.

JPEG/JPG format:

It uses compression technique to store image which is lossy. It may use wrong color choice after compression. It supports Gray, RGB color models. JPEG is a standard format developed by the Joint Photographic Experts Group, allowing the transfer of files between wide varieties of platforms, using superior compression techniques. JPEG supports 8-bit grayscale and color depths up to 32-bit CMYK.

EPS format:

It is a vector file format. It also stores bitmap information on MAC computer it uses PICT graphics and on PC it uses TIFF graphics.

TGA (Targa) format

The Targa (TGA) graphics format is a format for describing bitmaps. It supports various compression systems and is capable of representing bitmaps ranging from black and white to RGB color.

High end computer graphics uses this format. It uses several types of compression algorithm. It is useful to display AT & T true vision images.

Alpha is a type of data, found in 32-bit image files, that assigns transparency to the pixels in the image. RGBA is 32-bit True Color. RGB is 24 bit True Color.

PNG (Portable Network Graphics):

The Portable Network Graphics (PNG) file format is an excellent file format for lossless, portable, and well-compressed storage of bitmaps. It takes up a minimum amount of disk space and can be easily read and exchanged between computers. The Portable Network Graphics format provides a replacement for the GIF format and can also replace many common uses of the TIFF format.
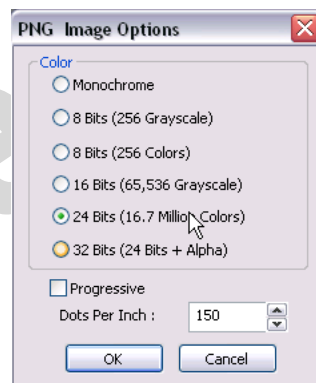
The Portable Network Graphics format is designed to work well in online viewing, such as on the Web, and it's fully stream-able with a progressive display option. You can export images to the Portable

Network Graphics file format if you want to use transparent backgrounds, image interlacing, image maps, or animation in your Web pages.

Exporting drawings to the Portable Network Graphics format converts them to bitmaps that can be used in desktop publishing programs. You can also edit Portable Network Graphics in paint programs such as Corel PHOTO-PAINT and Adobe Photoshop.

For Internet use, you can also save images to the GIF and JPEG formats. If you want to publish an image to the Web and you are not sure which format to use,

Portable Document Format

The Portable Document Format (PDF) is a file format designed to preserve fonts, images, graphics, and formatting of an original application file. Using Adobe Acrobat Reader and Adobe Acrobat Exchange, a PDF file can be viewed, shared, and printed by Macintosh, Windows, and UNIX users.

You can import an entire PDF file, individual pages from the file or multiple pages.

EPS (Encapsulate PostScript Format)

An encapsulated PostScript (EPS) file is a metafile supported by most illustration and page layout programs. It supports raster and vector graphics along with text. To view or print an EPS file, you must have a PostScript printer installed. It supports lab, CMYK, RGB, Indexed color, Duotone, Gray Scale and bitmap color modes. It does not support alpha channel.

IMAGE CAPTURING METHODS

Scanners
An image scanner is able to scan and capture text, imagery and objects and then turn them into a digital image, the most common scanners are flatbeds, this involves the object or document being placed on a horizontal glass surface whilst a bright light illuminates the surface and subsequently the object on the scanner is then converted to a digital image that can be seen and edited via the connected computer.
Digital Cameras

Digital Cameras like scanners are capable of image capture, except a digital camera is more transportable making them the preferable choice, this is also down to the fact that a Digital Camera is able to capture images of everyday life compared to the Scanner which requires invariably a flat document. Digital Cameras capture the image and then immediately present the image on the camera, the majority of modern cameras allow you to edit or filter images that have been stored.

Scanners would mainly be used when you are scanning a certain paper document or flat image, this is due to the fact that a scanner is a piece of hardware that is not very transportable and only has one glass screen for the document to be placed. However it makes much more sense to scan a paper document as opposed to digitally capturing the document via a digital camera where uploading to a computer system takes much more effort. It is unlikely though that a scanner would be used for anything 3D, this is because the scanner has to be closed in order to scan properly, a 3D object would not allow this to happen.

Digital Cameras would be used when capturing any 3D image that is unable to be scanned, because of the versatility of Digital Cameras you can take them almost everywhere and capture images of everything that you are able to, essentially there is no limit to what you can capture with a Digital camera, however there is one major issue, this being that in order to transfer the imagery to a computer you will need either a transfer cable or a memory card that can be inserted into the computer, whereas a scanner is mainly universal to the majority of computers.

SOUND

Sound is one of the most important element of multimedia. • It is meaningful "speech" in any language, from a whisper to a scream. • It can provide the listening pleasure of music, the accent of special effects or the ambience of a mood setting background.

Audio is sound within the acoustic range available to humans. An audio frequency (AF) is an electrical alternating current within the 20 to 20,000 hertz (cycles per second) range that can be used to produce acoustic sound. An audio file is a record of captured sound that can be played back. Sound is a sequence of naturally analog signals that are converted to digital signals by the audio card, using a microchip called an analog-to-digital converter (ADC). When sound is played, the digital signals are sent to the speakers where they are converted back to analog signals that generate varied sound.

The integration of audio sound into a multimedia application can provide the user with information not possible through any other method of communication .Some types of information can't be conveyed effectively without using sound.It is nearly impossible ,for example ,to provide an accurate textual description of the bear of a heart or the sound of the ocean.
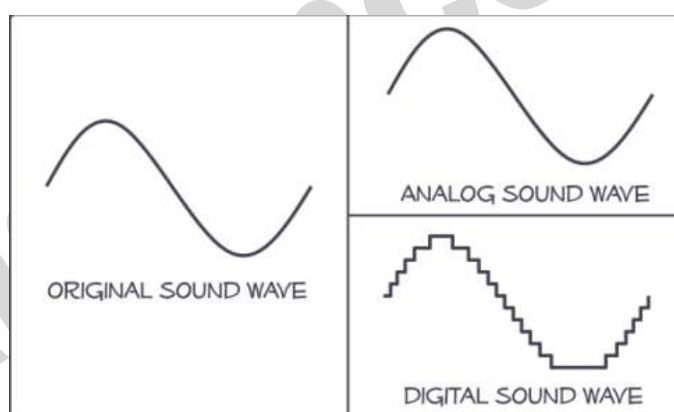
Audio sound can also reinforce the user's understanding of information presented in another type of media.

Analog sound
Sound itself is a continuous wave; it is an analog signal. This means that one cannot detect the precise moment the pitch changes. Capturing this continuous wave in its entirety requires an analog recording system; what the microphone receives is exactly what's written onto the vinyl disk or cassette. Analog is believed to be the true representation of the sound at the moment it was recorded.

Digital sound
Digital sound is not a recording of the actual sound, but rather a combination of binary code, the utmost simplest machine language of zeros and ones, representing the sound's intensity and pitch at precise intervals with relative accuracy. The binary code is arranged in a specific pattern informing the computer how to recreate the sound itself. It is not a single wave the way analog sound is, but rather a composite of multiple segments representing consecutive moments of intensity and pitch. Where an analog recording is similar to the fluency of film, a digital recording is stop motion photography.

ORIGINAL SOUND WAVE

ANALOG SOUND WAVE

DIGITAL SOUND WAVE

Animation
Animation refers to moving graphics images.The movement of somebody giving CPR makes it much easier to learn ,rather than just viewing a static picture. Just as a static graphics image is a powerful form of communication ,such is the case with animation. Animation is especially useful for illustrating

concepts that involve movement.Such concepts as playing a guitar or hitting a golf ball are difficult to illustrate using a single photograph, or even a series of photographs, and even more difficult to explain using text. Animation makes it easier to portray these aspects of your multimedia application.

Animation is made by exposing a series of pictures or frames, which results in an illusion of apparent movement. At this age of Technology, we have High Performance Workstation, which helped artists produce High Quality and more realistic animations. Animation movies is a result of one's vision and imagination. The most common examples of animation are the cartoon.

Principles of Animation

1. SQUASH AND STRETCH

This action gives the illusion of weight and volume to a character as it moves. Also squash and stretch is useful in animating dialogue and doing facial expressions. How extreme the use of squash and stretch is, depends on what is required in animating the scene. Usually it's broader in a short style of picture and subtler in a feature. It is used in all forms of character animation from a bouncing ball to the body weight of a person walking. This is the most important element you will be required to master and will be used often.

2. ANTICIPATION

This movement prepares the audience for a major action the character is about to perform, such as, starting to run, jump or change expression. A dancer does not just leap off the floor. A backwards motion occurs before the forward action is executed. The backward motion is the anticipation. A comic effect can be done by not using anticipation after a series of gags that used anticipation. Almost all real action has major or minor anticipation such as a pitcher's wind-up or a golfers' back swing. Feature animation is often less broad than short animation unless a scene requires it to develop a characters personality.

3. STAGING

A pose or action should clearly communicate to the audience the attitude, mood, reaction or idea of the character as it relates to the story and continuity of the story line. The effective use of long, medium, or close up shots, as well as camera angles also helps in telling the story. There is a limited amount of time in a film, so each sequence, scene and frame of film must relate to the overall story. Do not confuse the audience with too many actions at once. Use one action clearly stated to get the idea across, unless you are animating a scene that is to depict clutter and confusion. Staging directs the audience's attention to the story or idea being told. Care must be taken in background design so it isn't obscuring the animation or competing with it due to excess detail behind the animation. Background and animation should work together as a pictorial unit in a scene.

4. STRAIGHT AHEAD AND POSE TO POSE ANIMATION

Straight ahead animation starts at the first drawing and works drawing to drawing to the end of a scene. You can lose size, volume, and proportions with this method, but it does have spontaneity and freshness. Fast, wild action scenes are done this way. Pose to Pose is more planned out and charted with key drawings done at intervals throughout the scene. Size, volumes, and proportions are controlled better this way, as is the action. The lead animator will turn charting and keys over to his assistant. An assistant can be better used with this method so that the animator doesn't have to draw every drawing in a scene. An animator can do more scenes this way and concentrate on the planning of the animation. Many scenes use a bit of both methods of animation.

5. FOLLOW THROUGH AND OVERLAPPING ACTION

When the main body of the character stops all other parts continue to catch up to the main mass of the character, such as arms, long hair, clothing, coat tails or a dress, floppy ears or a long tail (these follow the path of action). Nothing stops all at once. This is follow through. Overlapping action is when the character changes direction while his clothes or hair continues forward. The character is going in a new direction, to be followed, a number of frames later, by his clothes in the new direction. "DRAG," in animation, for example, would be when Goofy starts to run, but his head, ears, upper body, and clothes do not keep up with his legs. In features, this type of action is done more subtly. Example: When Snow White starts to dance, her dress does not begin to move with her immediately but catches up a few frames later. Long hair and animal tail will also be handled in the same manner. Timing becomes critical to the effectiveness of drag and the overlapping action.

6. SLOW-OUT AND SLOW-IN

As action starts, we have more drawings near the starting pose, one or two in the middle, and more drawings near the next pose. Fewer drawings make the action faster and more drawings make the action slower. Slow-ins and slow-outs soften the action, making it more life-like. For a gag action, we may omit some slow-out or slow-ins for shock appeal or the surprise element. This will give more snap to the scene.

7. ARCS

All actions, with few exceptions (such as the animation of a mechanical device), follow an arc or slightly circular path. This is especially true of the human figure and the action of animals. Arcs give animation a more natural action and better flow. Think of natural movements in the terms of a pendulum swinging. All arm movement, head turns and even eye movements are executed on an arcs.

8. SECONDARY ACTION

This action adds to and enriches the main action and adds more dimension to the character animation, supplementing and/or re-enforcing the main action. Example: A character is angrily walking toward another character. The walk is forceful, aggressive, and forward leaning. The leg action is just short of a stomping walk. The secondary action is a few strong gestures of the arms working with the walk. Also, the possibility of dialogue being delivered at the same time with tilts and turns of the head to accentuate the walk and dialogue, but not so much as to distract from the walk action. All of these actions should work together in support of one another. Think of the walk as the primary action and arm swings, head bounce and all other actions of the body as secondary or supporting action.

9. TIMING

Expertise in timing comes best with experience and personal experimentation, using the trial and error method in refining technique. The basics are: more drawings between poses slow and smooth the action. Fewer drawings make the action faster and crisper. A variety of slow and fast timing within a scene adds texture and interest to the movement. Most animation is done on twos (one drawing photographed on two frames of film) or on ones (one drawing photographed on each frame of film). Twos are used most of the time, and ones are used during camera moves such as trucks, pans and occasionally for subtle and quick dialogue animation. Also, there is timing in the acting of a character to establish mood, emotion, and reaction to another character or to a situation. Studying movement of actors and performers on stage and in films is useful when animating human or animal characters. This

frame by frame examination of film footage will aid you in understanding timing for animation. This is a great way to learn from the others.

10. EXAGGERATION

Exaggeration is not extreme distortion of a drawing or extremely broad, violent action all the time. Its like a caricature of facial features, expressions, poses, attitudes and actions. Action traced from live action film can be accurate, but stiff and mechanical. In feature animation, a character must move more broadly to look natural. The same is true of facial expressions, but the action should not be as broad as in a short cartoon style. Exaggeration in a walk or an eye movement or even a head turn will give your film more appeal. Use good taste and common sense to keep from becoming too theatrical and excessively animated.

11. SOLID DRAWING

The basic principles of drawing form, weight, volume solidity and the illusion of three dimension apply to animation as it does to academic drawing. The way you draw cartoons, you draw in the classical sense, using pencil sketches and drawings for reproduction of life. You transform these into color and movement giving the characters the illusion of three-and four-dimensional life. Three dimensional is movement in space. The fourth dimension is movement in time.

12. APPEAL

A live performer has charisma. An animated character has appeal. Appealing animation does not mean just being cute and cuddly. All characters have to have appeal whether they are heroic, villainous, comic or cute. Appeal, as you will use it, includes an easy to read design, clear drawing, and personality development that will capture and involve the audience's interest. Early cartoons were basically a series of gags strung together on a main theme. Over the years, the artists have learned that to produce a feature there was a need for story continuity, character development and a higher quality of artwork throughout the entire production. Like all forms of story telling, the feature has to appeal to the mind as well as to the eye.

USES OF ANIMATION

In advertising Adverts need to be attention grabbing, memorable and appealing, and animation is well suited to achieve this. Therefore, much of the work undertaken by the animation industry is in creating adverts that promote products or services for client companies. Although some animators are employed in-house by advertising agencies, experienced animators often work freelance, being contracted to work as and when required. Animated banners and sequences are commonplace on the internet, not only as adverts but also as a regular feature of website design.

For entertainment

• Televisioncarries an increasing number of animated programmes. For children, animation may be used for entertainment or to get an educational message across, while animated shows and short films aimed at older people may have dramatic, comedy or satirical themes.

• Lately, with new digital technology, it has become easier to produce animated feature-length films and DVDs/videos, and such films even have their own category at the Oscars!

• One of the fastest-growing areas for animators is the field of commercial music videoproduction. Videos can be completely animated or moving images can be used incorporating cartoon animation mixed with straight video footage of the band or artist

• Title sequencesfor films and programmes and television channel ' idents' (short videos that identify the channel between programmes) often feature animation.

• Animation is used extensively in computer and video games. For education and training Animated sequences often work well within the field of education and training, when sensitive or thoughtprovoking treatments of a subject are needed. Hair-raising or funny images help convey messages that stick in the memory.

VIDEO

Visual multimedia source that combines a sequence of images to form a moving picture. The video transmits a signal to a screen and processes the order in which the screen captures should be shown. Videos usually have audio components that correspond with the pictures being shown on the screen.

DIGITAL VIDEO

Digital video is audio/visual in a binary format. **Digital video** is a representation of moving visual images in the form of encoded digital data. This is in contrast to analog video, which represents moving visual images with analog signals. Information is presented as a sequence of digital data, rather than in a continuous signal as analog information is. Digital A/V information consists of discrete units of data that are placed so close together that the human senses perceive them as a continuous flow. Analog data, such as video recorded on tape, is transmitted as electronic signals of varying frequency or amplitude that are added to carrier waves of a given frequency. To make that information usable on a computer or a modern media player, analog-to-digital conversion translates an analog signal to a series of zeroes and ones, which represent, respectively, "negative" and "positive," "off" and "on," or "low" and "high." The opposite action,

ANALOG VIDEO

Analog video uses an electrical signal to capture video images onto magnetic tape, while a digital video signal begins and remains digital. No quality is lost when you copy your video. It is also much easier to record and capture video to your computer directly via Firewire. Analog video degrades with each copy and requires a special video capture card or analog-to-digital converter box in order to import video onto your computer.

<div align="center">

UNIT-V

Features for a Multimedia System

</div>

Given the above challenges the following feature a desirable (if not a prerequisite) for a Multimedia System:

- **Very High Processing Power**
  - Needed to deal with large data processing and real time delivery of media. Special hardware commonplace.
- **Multimedia Capable File System**
  - Needed to deliver real-time media -- e.g. Video/Audio Streaming. Special Hardware/Software needed e.g RAID technology.
- **Data Representations/File Formats that support multimedia**
  - Data representations/file formats should be easy to handle yet allow for compression/decompression in real-time.
- **Efficient and High I/O**
  - Input and output to the file subsystem needs to be efficient and fast. Needs to allow for real-time recording as well as playback of data. e.g. Direct to Disk recording systems.
- **Special Operating System**
  - To allow access to file system and process data efficiently and quickly. Needs to support direct transfers to disk, real-time scheduling, fast interrupt processing, I/O streaming etc.
- **Storage and Memory**
  - Large storage units (of the order of 50 -100 Gb or more) and large memory (50 -100 Mb or more). Large Caches also required and frequently of Level 2 and 3 hierarchy for efficient management.
- **Network Support**
  - Client-server systems common as distributed systems common.
- **Software Tools**
  - User friendly tools needed to handle media, design and develop applications, deliver media.

Overview of Multimedia Software Tools

Music Sequencing and Notation

- Cakewalk Cakewalk is a well known older name for what is now called Pro Audio. The firm producing this sequencing and editing software, Twelve Tone Systems, also sells an introductory version of their software, "Cakewalk Express", over the Internet for a low price.
- The term sequencer comes from older devices that stored sequences of notes in the MIDI music language (events, in MIDI; see Section). It is also possible to insert WAV files and Windows MCI commands (for animation and video) into music tracks. (MCI is a ubiquitous component of the Windows API.)
- Cubase Cubase is another sequencing / editing program, with capabilities similar to those of Cakewalk. It includes some digital audio editing tools.

- Macromedia Sound edit Sound edit is a mature program for creating audio for multimedia projects and the web that integrates well with other Macromedia products such as Flash and Director.

Digital Audio

- Digital Audio tools deal with accessing and editing the actual sampled sounds that make up audio.
- Cool Edit Cool Edit is a powerful, popular digital audio toolkit with capabilities (for PC users, at least) that emulate a professional audio studio, including multitrack productions and sound file editing, along with digital signal processing effects.
- Sound Forge Sound Forge is a sophisticated PC - based program for editing WAV files. Sound can be captured from a CD - ROM drive or from tape or microphone through the sound card, then mixed and edited. It also permits adding complex special effects.
- Pro Tools Pro Tools is a high - end integrated audio production and editing environment that mns on Macintosh computers as well as Windows. Pro Tools offers easy MIDI creation and manipulation as well as powerful audio mixing, recording, and editing software.

Graphics and Image Editing

- Adobe Illustrator Illustrator is a powerful publishing tool for creating and editing vector graphics, which can easily be exported to use on the web.
- Adobe Photoshop Photoshop is the standard in a tool for graphics, image processing, and image manipulation. Layers of images, graphics, and text can be separately manipulated for maximum flexibility, and its "filter factory" permits creation of sophisticated lighting effects.
- Macromedia Fireworks Fireworks is software for making graphics specifically for the web. It includes a bitmap editor, a vector graphics editor, and a JavaScript generator for buttons and rollovers.
- Macromedia Freehand Freehand is a text and web graphics editing tool that supports many bitmap formats, such as GIF, PNG, and JPEG. These am pixel - based formats, in that each pixel is specified. It also supports vector - based formats, in which endpoints of lines are specified instead of the pixels themselves, such as SWF (Macromedia Flash) and FHC (Shockwave Freehand). It can also read Photoshop format.

Video Editing

- Adobe Premiere Premiere is a simple, intuitive video editing tool for nonlinear editing — putting video clips into any order. Video and audio are arranged in tracks, like a musical score. It provides a large number of video and audio tracks, superimpositions, and virtual clips. A large library of built - in transitions, filters, and motions for clips allows easy creation of effective multimedia productions.
- Adobe After Effects After Effects is a powerful video editing tool that enables users to add and change existing movies with effects such as lighting, shadows, and motion blurring. It also allows layers, as in Photoshop, to permit manipulating objects independently.
- Final Cut Pro Final Cut Pro is a video editing tool offered by Apple for the Macintosh platform. It allows the capture of video and audio from numerous sources, such as film and DV. It provides a

complete environment, from capturing the video to editing and color correction and finally output to a video file or broadcast from the computer.

Animation

- Multimedia APIs
- Java3D is an API used by Java to construct and render 3D graphics, similar to the way Java Media Framework handles media files. It provides a basic set of object primitives (cube, splines, etc.) upon which the developer can build scenes. It is an abstraction layer built on top of OpenGL or DirectX (the user can select which), so the graphics are accelerated.
- **DirectX,** a Windows API that supports video, images, audio, and 3D animation, is the most common API used to develop modern multimedia Windows applications, such as computer games.
- OpenGL was created in 1992 and has become the most popular 3D API in use today. OpenGL is highly portable and will run on all popular modern operating systems, such as UNIX, Linux, Windows, and Macintosh.

Multimedia Authoring

- Tools that provide the capability for creating a complete multimedia presentation, including interactive user control, are called authoring programs.
- Macromedia Flash is a multimedia platform used to add animation, video, and interactivity to web pages. Flash is frequently used for advertisements, games and flash animations for broadcast. More recently, it has been positioned as a tool for "Rich Internet Applications" ("RIAs"). Flash manipulates vector and raster graphics to provide animation of text, drawings, and still images. It supports bidirectional streaming of audio and video, and it can capture user input via mouse, keyboard, microphone, and camera. Flash contains an object - oriented language called ActionScript and supports automation via the JavaScript Flash language (JSFL).
- Flash content may be displayed on various computer systems and devices, using Adobe Flash Player, which is available free of charge for common web browsers, some mobile phones, and a few other electronic devices (using Flash Lite).
- Some users feel that Flash enriches their web experience, while others find the extensive use of Flash animation, particularly in advertising, intrusive and annoying. Flash has also been criticized for adversely affecting the usability of web pages.
- Macromedia Director Adobe Director (formerly **Macromedia Director**) is a multimedia application authoring platform created by Macromedia — now part of Adobe Systems. It allows users to build applications built on a movie metaphor, with the user as the "director" of the movie. Originally designed for creating animation sequences, the addition of a scripting language called Lingo made it a popular choice for creating CD - ROMs and standalone kiosks and web content using Adobe Shockwave. Adobe Director supports both 2D and 3D multimedia projects.
- Author ware was an interpreted, flowchart - based, graphical programming language. Authorware is used for creating interactive programs that can integrate a range of multimedia content, particularly e - learning applications. The flowchart model differentiates Authorware from other authoring tools, such as Adobe Flash and Adobe Director, which rely on a visual stage, time - line and script structure.

- Quest Quest, which uses a type of flowcharting metaphor, is similar to Authorware in many ways. However, the flowchart nodes can encapsulate information in a more abstract way (called "frames") than simply subroutine levels. As a result, connections between icons are more conceptual and do not always represent flow of control in the program.

Graphic File Formats

The primary web file formats are gif (pronounced "jiff"), jpeg ("jay-peg"), and, to a much lesser extent, png ("ping") files. All three common web graphic formats are so-called bitmap graphics, made up of a checkerboard grid of thousands of tiny colored square picture elements, or pixels. Bitmap files are the familiar types of files produced by cell phone and digital cameras, and are easily created, edited, resized, and optimized for web use with such widely available tools as Adobe's Photoshop or Elements, Corel's Paint Shop Pro and Painter, and other photo editing programs.

For efficient delivery over the Internet, virtually all web graphics are compressed to keep file sizes as small as possible. Most web sites use both gif and jpeg images. Choosing between these file types is largely a matter of assessing:

- The nature of the image (is the image a "photographic" collection of smooth tonal transitions or a diagrammatic image with hard edges and lines?)
- The effect of various kinds of file compression on image quality
- The efficiency of a compression technique in producing the smallest file size that looks good

GIF Graphics

The CompuServe Information Service popularized the Graphic Interchange Format (gif) in the 1980s as an efficient means to transmit images across data networks. In the early 1990s the original designers of the World Wide Web adopted gif for its efficiency and widespread familiarity. Many images on the web are in gif format, and virtually all web browsers that support graphics can display gif files. gif files incorporate a "lossless" compression scheme to keep file sizes at a minimum without compromising quality. However, gif files are 8-bit graphics and thus can only accommodate 256 colors.

GIF file compression

The gif file format uses a relatively basic form of file compression (Lempel Ziv Welch, or lzw) that squeezes out inefficiencies in data storage without losing data or distorting the image. The lzw compression scheme is best at compressing images with large fields of homogeneous color, such as logos and diagrams. It is much less efficient at compressing complicated "photographic" pictures with many colors and complex textures.

JPEG graphics

The other graphic file format commonly used on the web to minimize graphics file sizes is the Joint Photographic Experts Group (jpeg) compression scheme. Unlike gif graphics, jpeg images are full-color images that dedicate at least 24 bits of memory to each pixel, resulting in images that can incorporate 16.8 million colors.

jpeg images are used extensively among photographers, artists, graphic designers, medical imaging specialists, art historians, and other groups for whom image quality and color fidelity is important. A form of jpeg file called "progressive jpeg" gives jpeg graphics the same gradually built display seen in

interlaced gifs. Like interlaced gifs, progressive jpeg images often take longer to load onto the page than standard jpegs, but they do offer the user a quicker preview.

jpeg compression uses a sophisticated mathematical technique called a discrete cosine transformation to produce a sliding scale of graphics compression. You can choose the degree of compression you wish to apply to an image in jpeg format, but in doing so you also determine the image's quality. The more you squeeze a picture with jpeg compression, the more you degrade its quality. jpeg can achieve incredible compression ratios, squeezing graphics down to as much as one hundred times smaller than the original file.

PNG graphics

Portable Network Graphic (png) is an image format developed by a consortium of graphic software developers as a nonproprietary alternative to the gifimage format. As mentioned above, CompuServe developed the gif format, and gif uses the proprietary lzw compression scheme, which was patented by Unisys Corporation, meaning that any graphics tool developer making software that saved in gif format had to pay a royalty to Unisys and CompuServe. The patent has since expired, and software developers can use the gif format freely.

png graphics were designed specifically for use on web pages, and they offer a range of attractive features, including a full range of color depths, support for sophisticated image transparency, better interlacing, and automatic corrections for display monitor gamma. png images can also hold a short text description of the image's content, which allows Internet search engines to search for images based on these embedded text descriptions.

png supports full-color images and can be used for photographic images. However, because it uses lossless compression, the resulting file is much larger than with lossy jpeg compression. Like gif, png does best with line art, text, and logos—images that contain large areas of homogenous color with sharp transitions between colors. Images of this type saved in the png format look good and have a similar or even smaller file size than when saved as gifs. However, widespread adoption of the png format has been slow. This is due in part to inconsistent support in web browsers. In particular, Internet Explorer does not fully support all the features of png graphics. As a result, most images that would be suitable for png compression use the gif format instead, which has the benefit of full and consistent browser support.

MIDI

MIDI (short for Musical Instrument Digital Interface) is a technical standard that describes a communications protocol, digital interface, and electrical connectors and allows a wide variety of electronic musical instruments, computers and other related music and audio devices to connect and communicate with one another.[1] A single MIDI link can carry up to sixteen channels of information, each of which can be routed to a separate device.

Stands for "Musical Instrument Digital Interface." MIDI is a connectivity standard for transferring digital instrument data. It is primarily used by computers, synthesizers, and electronic keyboards. However, MIDI is supported by several other instruments, such as electronic drums, beat boxes, and even digital stringed instruments like guitars and violins.

MIDI data includes several types of information. For example, pressing a single key on a synthesizer transmits the note played, the velocity (how hard the note is pressed), and how long the note is held. If multiple notes are played at once, the MIDI data is transmitted for all the notes simultaneously. Other data that may be sent over a MIDI connection includes the instrument ID, sustain pedal timings, and controller information, such as pitch bend and vibrato.

MIDI DEVICES

Synthesizers

MIDI syntheiszers are components that generate sounds based on the input of MIDI software messages. Musically speaking, MIDI synthesizers create pitched and/or percussion sounds. This definition is seemingly simple in concept, but keep in mind there are a variety of MIDI synthesizers employing various technologies such as MIDI software, hardware, and digital- or analog-synthesis. There is also a plethora a specific, technical terminology that's been coined to describe these MIDI devices. The key feature of MIDI synthesizers is that they produce musical tones and percussion based on the input of MIDI software messages.

One point does require further distinction. Synthesizers are NOT necessarily integrated with a keyboard. Rack-mounted MIDI synthesizers and MIDI-enabled computer sound cards are both examples of MIDI synthesizers that aren't integrated with a MIDI controller such as a keyboard. Another good example of the of the keyboard-less MIDI sythisizer is the drum machine. In short, the MIDI synthesizer generates music based on MIDI software messgaes but it doesn't need to be integrated with a controller.

Three Types of MIDI Synthesizers:

- **(i)** **Integrated Keyboard and Synthesizer,**
- **(ii)** **Rack-mounted Synthesizer, and**
- **(iii)** **a Drum Machine.**

Controllers

MIDI controllers are the MIDI devices that musicans physically manipulate to generate MIDI software messages. MIDI controllers can take the form of almost any acoustic or electronic instrument such as keyboards, guitars, drum sets, drum pads, and even woodwind-like instruments. Keep in mind that a controller does NOT synthesize or generate audible music. MIDI controllers generate MIDI software messages that are routed through one or more MIDI ports. That said, MIDI controllers are commonly integrated with a synthesizer because controllers without an integrated synthesizer aren't very interesting for cost-conscious musicians. Of course the most typical integrated product is the MIDI keyboard controller and synthesizer packaged into a single unti. The Ztar shown to the right and the Yamaha WX5 shown below are examples of non-keyboard controllers that are **not** integrated with a synthesizer.

Sequencers

The MIDI sequencer is an electronic device incorporating both MIDI software and hardware, which is used for storing and replaying MIDI software message sequences. In effect, the sequencer is the electronic version of the musician in the MIDI world. Early on, most of the available sequencers were physical devices with small cryptic displays and a keypad for control and data entry. Since then, **music composition software** such as **Tonalsoft's Tonescape** have come to dominate the niche for MIDI sequencers. Software sequencers are ideal since they can easily show two faces to the world: (a) their human face enables musicans to see and edit a MIDI sequence using a familiar notation such as staff notation or piano roll, and (b) their machine face provides a MIDI software message port that communicates directly with other MIDI enabled devices. Here's the important point from this paragraph: logically, a MIDI sequencer (a) records MIDI software message sequences, (b) replays MIDI software sequences using the appropriate timing, and (c) provides some sort of editing capabilities.

Networks

The last logical MIDI device that we'll be discussing is the network itself. In fact, the concept of the MIDI network is just a generalization of a device called the **Patch Bay**. A MIDI network is a combination of hardware and software that provides interconnectivity between a group of MIDI devices, such as synthesizers, controllers, and sequencers.
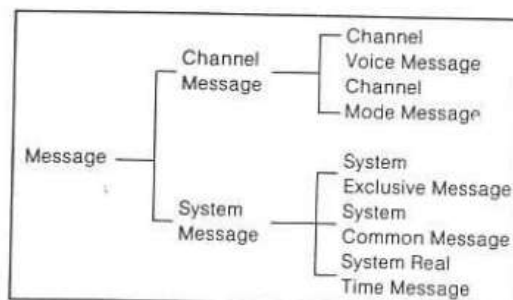
In the MIDI universe, a logical connection between two devices is accomplished over a MIDI port. There are **MIDI-in** and **MIDI-out** ports. As the name implies, MIDI-in ports accept data that's sent from another device; while MIDI-out ports send MIDI software messages to other devices' input ports. There's also a port called the pass-through or **MIDI-thru** port. As the name suggests, the MIDI Thru passes incoming MIDI software messages to the MIDI device's MIDI-out port. I'll get into the details of MIDI ports in the next installment of The Pitch Bend. A MIDI network may contain one or more logical MIDI ports that interconnect dozens of MIDI devices. Notice the use of the word "logical". Originally, a MIDI port was a specific type of plug (outlet) with a specific type of cable. As time progressed, MIDI became available over a variety of cables and networking hardware. In some instances, a single physical connection can provide the same features as multiple logical MIDI ports.

MIDI MESSAGES

The MIDI Message specification (or "MIDI Protocol") is probably the most important part of MIDI. MIDI is a music description language in digital (binary) form. It was designed for use with keyboard-based musical instruments, so the message structure is oriented to performance events, such as picking a note and then striking it, or setting typical parameters available on electronic keyboards. For example, to sound a note in MIDI you send a "Note On" message, and then assign that note a "velocity", which determines how loud it plays relative to other notes. You can also adjust the overall loudness of all the notes with a Channel Volume" message. Other MIDI messages include selecting which instrument sounds to use, stereo panning, and more.

TYPES OF MIDI MESSAGES

■ Channel Message

Channel message consists of a status byte containing the channel number, and another one or two bytes.

● Channel Voice Message

There are 7 types of channel voice messages which control sound generation at the receiver.

● Channel Mode Message

Channel mode messages (OMNI, PLY, MONO) enable the receiver to select certain types of voice control for example OMNI (ON) means the receiver will accept voice data in all channels. There 16 channels. POLY (ON) means the receiver will accept data on the assigned channel. MONO (ON) means each voice within an instrument will respond to a different channel.

■ System Message

No channel is designated in system messages, and all information is transmitted to all instruments connected by MIDI cables.

● System Exclusive Message

Exclusive messages can contain any number of data bytes and are terminated by an end of exclusive meaasge (ROX) byte or a status byte. These messages include a manufacturers ID number; if the receiver does not recognize the ID code, it will ignore the data.

● System Common Message

A message effective to all the instruments connected. It includes the method for specifying the music used by a sequencer or rhythm machine, and the information indicating the end of transmission of the tuning system exclusive message for an analog synthesizer.

● System Real Time Message

Includes 6 kinds of messages for synchronizing all the instruments connected with MIDI cables.