UNIT-I

Desktop Publishing

Did you know that desktop publishing can help you increase productivity, minimize production cost and enhance the appearance of your documents? Read more to find out about the advantages of outsourcing DTP.

Desktop Publishing

Desktop publishing (usually abbreviated as DTP) is a process for producing printed content by using specialized software to link desktop computers with desktop and other printers. The quality is designed to equal or exceed typeset printing in books. While desktop publishing can include any office or home network that allows you to produce a printable document, DTP usually refers to professional computer-based publishing from expert providers such as Artwork Abode.

Desktop publishing software makes it easy to vary typefaces and margins while embedding graphs and illustrations — this feature involving images is especially important in an increasingly visual business world. DTP applications allow users to create and alter page layouts such as a book layout or magazine layout. With DTP, text formatting and typesetting can be accomplished with a click of a computer mouse. Advantages of Desktop Publishing

Here are the primary desktop publishing advantages:
1. Increased productivity
2. Reduced production costs
3. Improved appearance of documents
4. Enhanced creativity with an element of fun
5. Ability to produce customized documents
6. Reduced time to print

Desktop publishing has effectively replaced the need for large printing presses. The ease of importing images from various sources and then resizing images allows desktop publishing software to produce professional-looking documents without graphic design skills.

If you thought that word processing is enough, then you will need to think again. Without Desktop Publishing, your business will lose out to competitors who can impress customers with better-looking documents and thereby generate more sales. If you are not convinced if DTP services are for your business, then read on to find out the advantages of desktop publishing.

With desktop publishing, you can increase productivity, minimize production cost, enhance the appearance of your documents, improve the level of creativity, reduce the time taken for printing and produce customized documents. The best part about DTP is that you can create professional-looking documents, without the need for graphic design.

Advantage # 1: Enhanced appearance with 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. An enhanced appearance with an attractive page layout on your sales brochure, booklet or flyer is sure to bring about an increase in sales.

Advantage # 2: Easy customization for any type of document

DTP can revolutionize the way in which your customers, suppliers, investors and employees think about your company. Trough 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.

Advantage # 3: 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 (Computers and printers) or the software and regular upgrades. This will minimize your production cost, while giving you access to top-notch quality desktop publishing services.

Desktop publishing and strong graphic design make documents look better, but there's more to desktop publishing than just appearance. Used properly, desktop publishing enhances visual communication and streamlines the process of disseminating information of all kinds. It's also the method of file preparation that ensures files print properly so that communications get out in a timely manner.

DESKTOP PUBLISHING IS AFFORDABLE

Desktop publishing is important as a tool that enhances communication by making it possible to efficiently produce printed and electronic—online or onscreen—documents, without the expertise and expensive equipment that was once required.

Although skilled graphic designers use desktop publishing, so do small business owners, freelancers, website owners and club presidents.

DESKTOP PUBLISHING IS A DESIRABLE SKILL SET

Employers are looking for employees with desktop publishing skills for many of their job openings. That means office managers, teachers, administrative assistants, real estate agents, restaurant managers, and just about any office or clerical job—and many that aren't—require some level of desktop publishing skills. In the office environment, that may mean at a minimum familiarity with the Microsoft Office Suite or Publisher.

Students, individuals on a tight budget and job-seekers can all save money by learning basic desktop publishing skills to improve the look and clarity of their papers or resumes. Adding desktop publishing to your resume may give you that extra something many employers look for.

DESKTOP PUBLISHING IS AVAILABLE TO EVERYONE

Before the mid-1980s, only trained graphic designers and high-end commercial printers and service bureaus produced the printed products available to the public.

That changed with the introduction of Aldus Pagemaker, the Mac computer and a Postscript printer in 1984 and 1985.

The combination of affordable software and desktop computers enticed people who had never before been able to create their own publications. Desktop publishing software allows the user to rearrange text and graphics on screen, change typefaces as easily as changing shoes, and resize graphics on the fly.

Just by following a few rules of desktop publishing, users were able to turn out professional-looking documents.

DTP Software and Hardware

Desktop publishers and graphic designers for print and web use four general groups of software. These types of programs make up the core of a designer's toolbox. Additional utilities, add-ons, and specialty software not covered here can enhance the basic desktop publishing software arsenal. Within some of the four general groups of software are sub-categories.

Word Processor
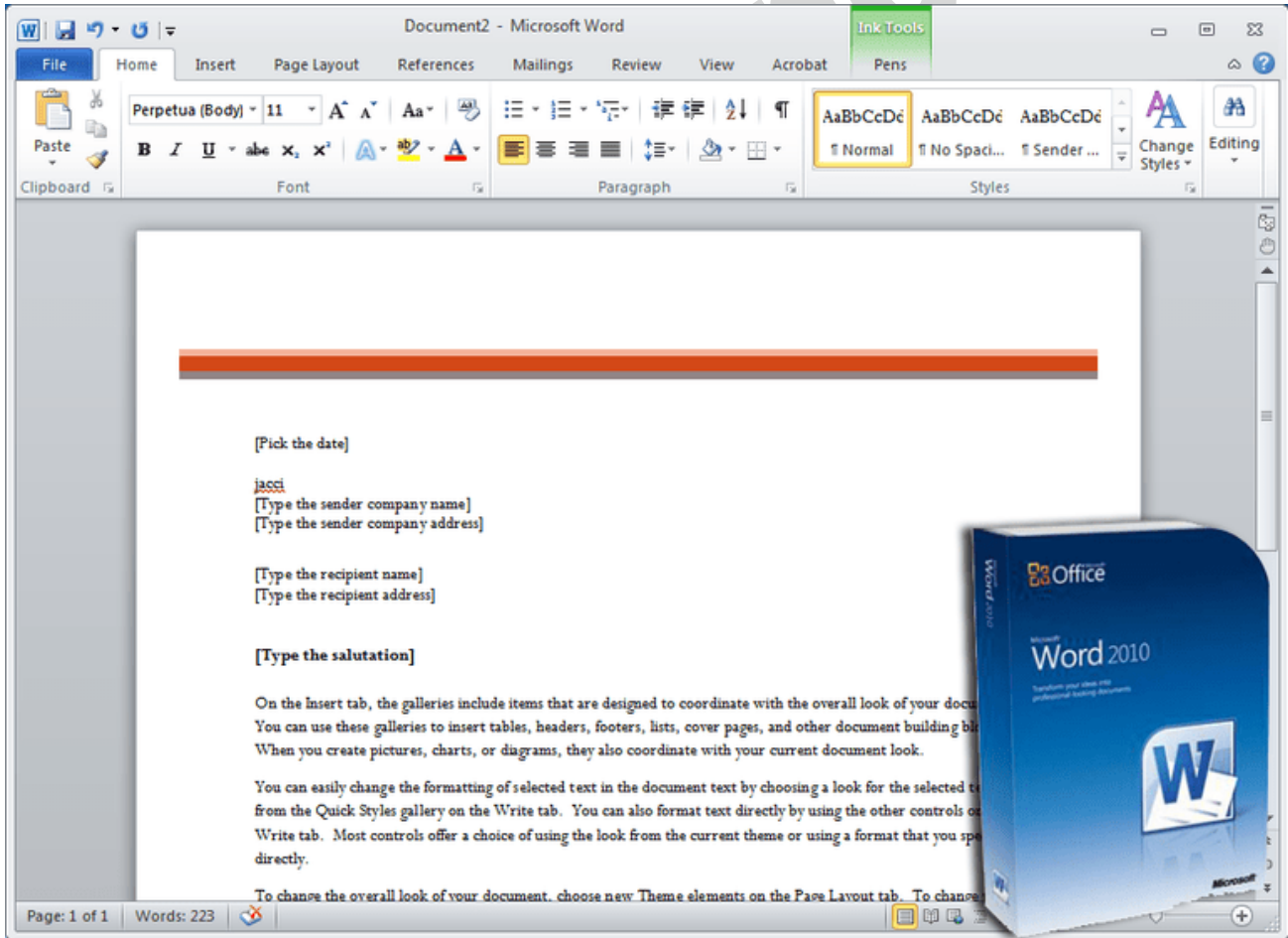
Microsoft Word 2010 Box Shot and Sample Template. Microsoft Word 2010 Box Shot and Sample Template; Box shot courtesy of PriceGrabber

You use a word processor to type and edit text including spell checking and grammar checking. You may even be able to format specific elements on the fly and include those formatting tags when you import text to your page layout program, simplifying some formatting tasks. While you can do some layout work in your word processor software, it is best suited to working with words, not for page layout. If your intent is to have your work commercially printed, word processing file formats are usually not suitable. Choose a word processor that can import and export a variety of formats for maximum compatibility with others.

Word Processing Software Examples: Microsoft Word, Corel WordPerfect, AbiWord, Apple Pages More »

Page Layout Software
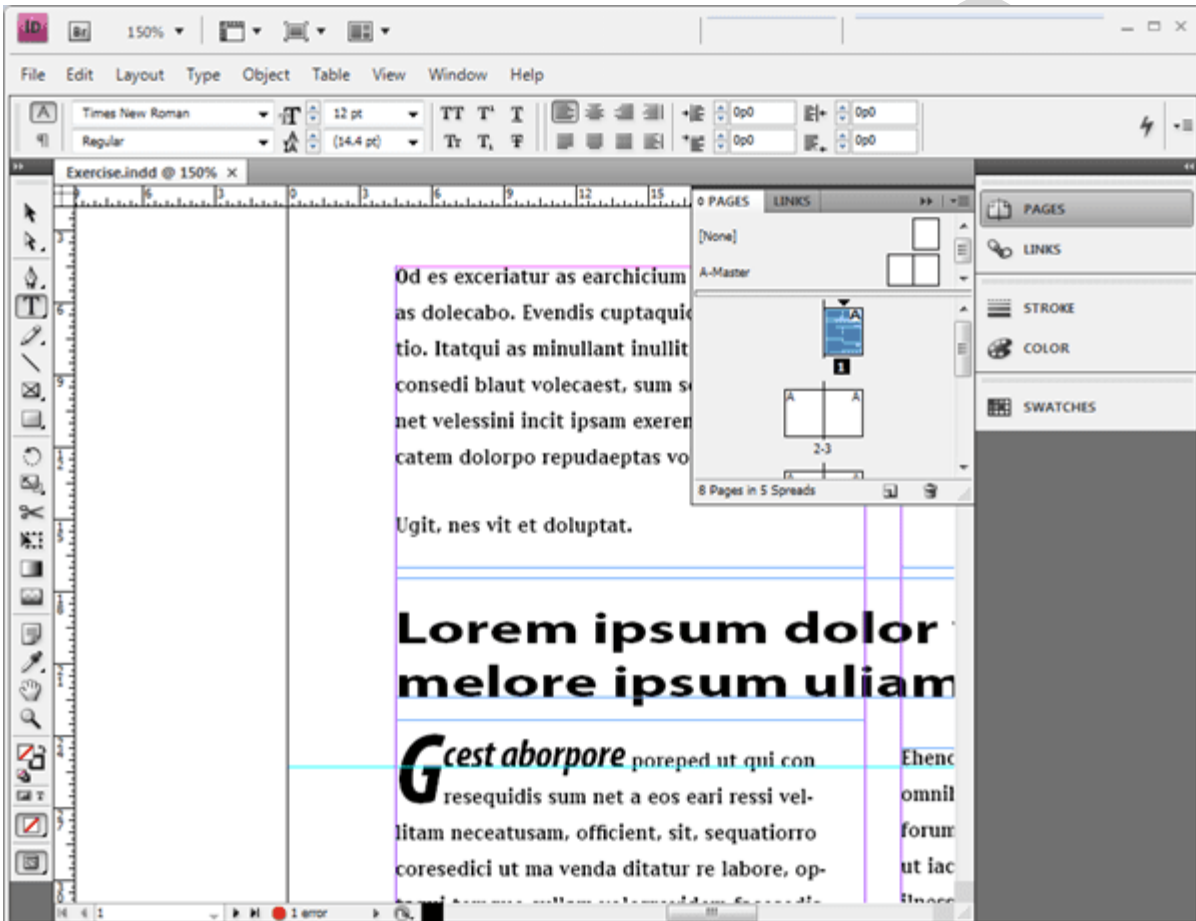
Adobe InDesign CS4 with open document. Adobe CS4 Screenshot by J. Bear

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

Professional page layout software is dominated by Adobe InDesign and QuarkXPress for PC and Mac. Other page layout software for PCs includes Serif PagePlus and Microsoft Publisher.

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, Print Master and Print Artist.

Graphics Software
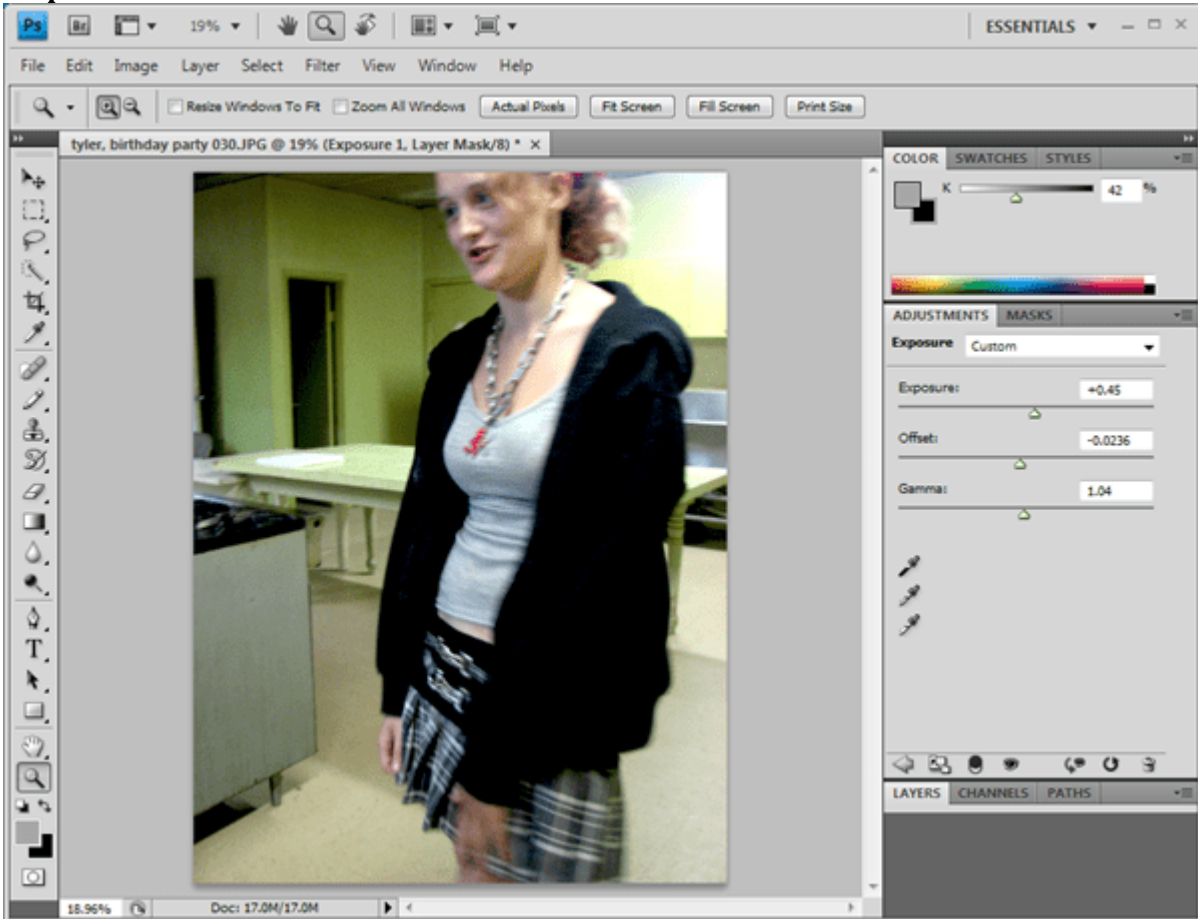
Adobe Photoshop CS4 with photo open for editing. Adobe CS4 Screenshot by J. Bear

For print publishing, 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.

Illustration software works with scaleable vector graphicsthat allow flexibility when creating artwork that is to be resized or must go through multiple edits. Adobe Illustrator, CorelDraw and Inkscape are examples of

Photo Editing Software, also called paint programs or image editors, work with bitmap images such as scanned photos. Although illustration programs can export bitmaps, photo editors are better for web images and many special photo effects. Photoshop is a popular example. Other image editors include Corel PaintShop Pro and Gimp.

Electronic or Web Publishing

Adobe Dreamweaver CS5. Adobe Dreamweaver CS5; Image courtesy of PriceGrabber

Most designers today, even those in print, need some web publishing skills. Many of today's page layout programsand 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.

HARDWARE FOR DESKTOP PUBLISHING

The production of high quality documents can be achieved with computers large and small. However, the field of desktop publishing is normally associated with small computers, such as the ubiquitous microcomputer. DTP can be carried out on the full range of machines, ranging from the inexpensive home computer to the 32-bit microcomputer and powerful engineering 'workstations' seen today. For professional results, DTP requires a microcomputer with considerable power. This is partly because of the need to process, print and display information graphically.

Processor power. A 32-bit processor is recommended. Machines are obtainable with a variety of RAM configurations. Two megabytes is probably a reasonable amount, although five are likely to be needed for the new operating system OS/2.

Fixed disk drives.
Forty megabytes is the minimum amount acceptable and more should be obtained if possible, especially if images are to be stored. Not to be overlooked is the speed of access to the data on the disk.

The screen.
With DTP, it is essential to have a screen which can display data graphically. In addition, in order to design the page on the screen, it is Hardware and software for desktop publishing 71 convenient (possibly essential) to have a display which can show a whole A4 page, and possibly two on the screen. It will also be helpful to have a screen with a higher resolution than normally seen on a microcomputer. This will enable extremely small font sizes to be seen. A colour screen might also be necessary, if colour images are to be handled. If particular screen fonts need to be employed, it will be necessary to install them.

Printer.
The printer required depends, in part, on the quality of the output required. Laser printers are able to print a page graphically so that line drawings and halftone images can be printed. The quality of the

output is dependent on the resolution (how close the dots can be printed). Normally 300 DPI (dots per inch) is the resolution available, but up to 600 DPI can be obtained, at a price. Other printers can also print graphically, and even the humble dot-matrix printer or the ink-jet printer can be used in some circumstances. The output quality is likely to be less good than the laser printer, however. The speed of printing will also depend on how powerful the laser printer is. They normally contain a microprocessor and RAM memory; if graphical data is to be printed, two megabytes of RAM are likely to be needed. Storage of a range of fonts will also take up memory space in the printer, although they can be downloaded from the computer or stored in plug-in font cartridges. If the laser printer is to be used heavily, it is worthwhile investing in a more expensive model. Pages can be described by a page description language, the best known being PostScript. The language is processed by an interpreter in the printer. Even though PostScript printers tend to be more expensive that other types, there are advantages, such as the fact that fonts of different sizes do not need to be stored. They are generated mathematically from so-called outline fonts. In addition, a PostScript page can be printed on compatible printers with differing resolutions. It is even possible to use a phototypesetting device to produce the page at much higher resolution than the laser printer, all this without changing the actual data. Hewlett Packard produces laser printers which have also established themselves as a popular standard. Scanners. Scanners are used to capture data from the printed page. They can be categorised according to the way they carry out the scanning process. One kind moves the paper across the reading device, a second moves the scanner over the paper and the third is portable. Some scanners can handle different shades of grey or colour data. When the data has been captured, it can be treated in different ways. Characters can be analysed and recognised by optical character equipment. Captured images can be processed in a variety of ways (see software below). Phototypesetters. These machines, also known as image setters, give output with a resolution above a thousand dots per inch and hence are used to produce quality output.

Networks.
Microcomputers can be connected into local area networks (LAN). This allows different users to work on the same, or related files, which can then be brought into the same document.

Page Layout Programs
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 and positioning of graphics.

Page layout programs are the backbone of desktop publishing.

Application software for creating and precisely assembling text and graphic parts into a 'page' that can be printed exactly as seen on the screen. These programs (such as Adobe's Pagemaker and Quark's QuarkXpress) allow control of every element (such as fonts, character spacing, word spacing, and line spacing of text, and color, size, and resolution of graphics) of a page of any size the printing device can handle.

Lightweight page layout software help combine graphics and texts to create layouts for flyers, brochures, ads, newsletters, greeting cards, books, leaflets, certificate from templates.

A page layout program is the assembly area where all the parts of a project are put together. You can write text directly in the program, but you can also import it from any word processor. You can style and format the text professionally, and import graphics, then resize and position them.

Once you bring text into a page layout program (or write it directly on the page), you can do many of the same tasks you would in a word processor like :

- Style and format text, either manually or using style sheets
- Check your spelling
- Find-and-change to replace text phrases or formatting

However, because you are working in a page layout program there are other things you can do with text:
- Rotate and overlap text for special effects
- Use justification controls to fine-tune the spaces between letters, words, and lines
- Lock the text to a baseline grid so it automatically lines up across columns and pages
- Change the horizontal or vertical scale sizes of the text
- Convert text to paths (sometimes called outlines) so that it can be used for graphic elements
    Things you can do with graphics through Page Layout Programs:
    - Resizing graphics.
    - Scaling graphics down.
    - Rotating graphics.
    - Changing the colors of graphics.

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 pagesas 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 replaceone 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 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.
- merges: 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 highlightany 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

Desktop Publishing vs. Word Processing

Word processors are meant to create and edit documents while desktop publishing possess basic word processing with enhanced formatting and layout features. Learn more about the differences between the two applications.

What is Word Processing?

A word processor like Microsoft Word is basically an electronic typewriter application with the option of editing content whenever needed. Word processing allows documents to be typed for printing or viewing electronically and has some extra features like spell checking, formatting and lists. These extra features give the user more document control than that of simple text editors. The general idea for any word processing application is to be able to edit and format the final document. Thus, the advantages include:

- Easy to edit, move, delete, save, print, spell check, and format.
- It also allows the expression of ideas clearly as these can be changed or deleted later.
- Allows organization of ideas in one single file.
- Easy sharing and storage features.

What is Desktop Publishing?

Desktop publishing is as good as having a mini-printing press within a personal computer. Publishing software helps design the page layout for each document. Tools in desktop publishing applications can help the user to configure the layout, where things are printed in the final design and how things are printed. Desktop publishing tools are simple to understand and use, plus with having the absolute layout control it is distinguished from word processing applications. A list of open source desktop publishing tools are listed here. Advantages over word processing use include:

- Desktop publishing at home or office can be less expensive.
- The tool allows full control on the final output.
- Easy to edit and make changes.
- More mediums (text, pictures, and graphics) to communicate ideas.

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 whilst 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 whilst 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.

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 it self can be seen on the screen as it will appear in print. For magazine design, individual page can be built up the data. When we discuss more about DTP software package. 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.

Like: - 1. Adobe PageMaker, 2. Coral Draw, 3. Adobe Photoshop, 4. Adobe In design,
5. Corel Ventura, 6. Adobe Frame Maker 7. Microsoft Publisher, 8. QuarkXPress,
9. IStudio Publisher, 10. Scribus.

1. Adobe PageMaker: - Adobe PageMaker is a desktop publishing program. These make by ALDUS CORPORATION in 1985. Initially for the then-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:-
a.   **PageMaker 1.1:-** Running on the window 1.0 (1985).
b.   **PageMaker 1.2:-** Running on the Manthos & Window (1986).
c.   **PageMaker 3.0:-** Running on the window 2.0 (1988).
d.   **PageMaker 4.0, 5.0, 6.0 and 6.5:-** Running on the window between (1988 to 2000).
e.   **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:-
a.   **Coral Draw 1:-** Running on window 2.1 (1989).
b.   **Coral Draw 2:-** Running on window 3.0 (1991).
c.   **Coral Draw 3:-** Running on window 3.1 (1992).
d.   **Coral Draw 4:-** Running on window 3.1 (1993).
e.   **Coral Draw 5:-** Running on window 3.1 (1994).
f.   **Coral Draw 6:-** Running on window 95 (1995).
g.   **Coral Draw 7, 8, 9, 10, 11, and 12:-** Running on window 95, window 98, window 2000, window XP, window anti (1996-2004).
h.   **Coral Draw 16:-** Running on window XP, window Vista, window 7 (March 2012).

3. Adobe Photoshop: - Adobe Photoshop is a DTP Software. Which make by Adobe System. In the market, 2 available addition of Adobe Photoshop are:
 i.   Adobe Photoshop
ii.   Adobe Photoshop Extended.
Versions of Adobe Photoshop:-
a.   **Adobe Photoshop 1.0:-** Run on Macintosh (1990).
b.   **Adobe Photoshop 2.0:-** Run on Macintosh (1991).
c.   **Adobe Photoshop 2.5:-** Running on Window & Macintosh (1992).
d.   **Adobe Photoshop 3.0, 4.0, 5.0, 5.5, 6.0:-** Running on Window, Macintosh, Selron, IRIX (1994-2000).
e.   **Adobe Photoshop 7.0:-** Running on Window, Mac OSX, Classic (2002).
f.   **Adobe Photoshop 7.0.1:-** Running on Window, Mac OSX, Classic (2002).

4. 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. In Design 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 supports export to EPUB and SWF formats to create digital

publications, and content suitable for consumption on tablet computers. The Adobe in Copy word processor uses the same formatting engine as In Design.

Versions of Adobe in Design

a.   **In Design 1.0 (codenamed Shuksan, then K2):-** August 31, 1999.

b.   **In Design 1.0J (codenamed Hotaka):-** Japanese support.

c.   **In Design 1.5 (codenamed Sherpa):-** April 2001.

d.   **In Design 2.0 (codenamed Annapurna):-** January 2002 (just days before QuarkXPress 5). First version to support Mac OS X and native transparencies & drop shadows.

e.   **In Design CS (codenamed Dragon tail) and In Design CS Page Maker Edition (3.0):-** October 2003 on Windows XP.

f.   **In Design CS2 (4.0) (codenamed Firedrake):-** shipped in May 2005.

g.   **In Design Server (codenamed Bishop):-** released October 2005.

h.   **In Design CS3 (5.0) (codenamed Cobalt):-** April 2007. First Universal binary versions to natively support Intel-based Macs, Regular expression, Table styles, new interface.

i.   **In Design CS3 Server (codenamed Xenon):-** released May 2007.

j.   **In Design CS4 (6.0) (codenamed Basil):-** Introduced September 23, shipped in October 2008.

k.   **In Design CS4 Server (codenamed Thyme).**

l.   **In Design CS5 (7.0) (codenamed Rocket):-** released April 2010.

m.   **In Design CS5.5 (7.5) (codenamed Odin):-** released April 2011.

n.   **In Design CS6:-** released 23. April 2012.

5. Corel Ventura: - Ventura Publisher was the first popular desktop publishing package for IBM PC compatible computers running the GEM extension to the DOS operating system. The software was originally developed by Ventura Software, a small software company founded by John Meyer, Don Heiskel and Lee Jay Lorenzen, all of whom met while working at Digital Research. It ran under an included run-time copy of Digital Research, Inc.'s Graphical Environment Manager (GEM).The first version of Ventura Publisher was released in 1986.Ventura Publisher was distributed worldwide exclusively by Xerox from its first shipment in 1986 until Ventura Software sold the source code to Xerox in 1990. The original Ventura Software ceased operations in February 1990, and a new Ventura Software Inc., an affiliated company of Xerox, was formed at that time. The developers from the original company worked with the new Xerox Ventura Software company to produce Version 3.0 Gold. This was released in late 1990. Besides DOS/GEM it was also available for Win16, Mac and OS/2. The three founders of the original Ventura Software no longer worked on the product after November 1990. Version 4.0 was released in 1991. The last version released by Ventura Software Inc. was 4.1.1 in 1993.Ventura Publisher, while it has some text editing and line drawing capabilities of its own, was designed to interface with a wide variety of word processing and graphics programs, rather than supplant them. To that end, text, rather than being incorporated into the chapter files, is stored in, loaded from, and saved back to, word processor files in the native formats of a variety of word processors, including WordPerfect, Word star, and early versions of Microsoft Word. This allows users to continue using their favorite word processors for major text changes, spelling checks, and so forth. Paragraphs other than default body text are tagged with descriptive tag names that are entirely user-defined, and characters and attributes that have no native equivalent in a given word processor are represented with standardized sequences of characters. When working with the files outside of Ventura Publisher, these paragraph tags and special character and attribute codes can be freely changed, the same as any other text. These tags look very much like HTML tags. Because it was the first major typesetting program to incorporate the concept of an implicit "underlying page" frame, and one of the first to incorporate a strong "style sheet" concept, Ventura Publisher produces documents with a high degree of internal consistency, unless specifically overridden by the user. Its concepts of free-flowing text, paragraph tagging, and codes for attributes and special characters anticipated similar concepts

inherent in HTML and XML. Likewise, its concept of "publication" files that tie together "chapter" files gave it the ability to handle documents hundreds (or even thousands) of pages in length as easily as a four-page newsletter. The major strengths of the original DOS/GEM edition of Ventura Publisher are:

a.   Its ability to run, with reasonable response times, on a wide range of hardware (including 8086 and 80286-based computers).

b.   Its ability to produce, by default, documents with a high degree of internal consistency.

c.   Its automatic re-exports of text to word-processor-native formats.

d.   Its ability to print to a wide variety of devices, including PostScript, PCL, and Inter Press laser printers and image setters, as well as certain popular dot-matrix printers.

The application was acquired by Corel in 1993. It was repackaged and soon released as Corel Ventura 4.2 without any major change in the application, other than to drop all support for platforms other than Microsoft Windows. The first real Corel version was 5.0, released in 1994, and made fundamental changes to both user interface and document structure. Because of this, and because of escalating requirements of the various Corel versions, the original DOS/GEM edition still has a small number of die-hard users. The application was rewritten for the Win32 platform and was released in 1996, labeled Corel Ventura 7 (instead of 6) so that it would match the version number of Corel DRAW. Corel Ventura 8 was released in 1998.The latest version (as of June 2011) is Corel Ventura 10 (2002), this version runs in Windows 7 (x86/64) with compatibility mode (w2k).

As an application with strengths in more structured documents, its main competitors are Frame Maker, In Design and QuarkXPress.

6. 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 maintains a strong following among professional technical writers. Frame Maker has more or less kept up with the times in supporting new standards such as XML and Web DAV, but at heart it is a proprietary single-desktop-oriented system based on a binary file format. While problems exist in Frame Maker's 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. Adobe added SGML support, which eventually morphed into today's XML support. In April 2004, Adobe ceased support of Frame Maker for the Macintosh. This reinvigorated rumors surfacing in 2001 that product development and support for Frame Maker were being wound down. Adobe denied these rumors in 2001, later releasing Frame maker 8 at the end of July 2007, Frame maker 9 in 2009, and Frame maker 10 in 2011.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. Structured Frame Maker uses SGML and XML concepts. The author works with an EDD (Element Definition Document), which is a Frame Maker-specific DTD (Document Type Definition). The EDD defines the structure of a document where meaningful units are designated as elements nested in each other depending on their relationships, and where the formatting of these elements is based on their contexts. Attributes or Metadata can be added to these elements and used for single source publishing or for filtering elements during the output processes (such as publishing for print or for web-based display). The author can view the conditions and contexts in a tree-like structure derived from the grammar (as specified by the DTD) or as formatted in a typical final output form. 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. If the user opens a structured file in the unstructured Frame Maker, the structure will be lost.

Versions of Adobe Frame Maker:-

a. **Frame Maker 1.11b:-** Released in 1986 (Solaris and AEGIS)

b. **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). First version to support book level generated lists.

c. **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).

d. **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.

e. **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. This major version also introduced Frame Maker and Frame Maker+SGML (to replace Frame Builder).

f. **Frame Maker 5.5/5.5.6:-** Released in 1997 (Frame Maker 5.5.6 was released in 1998) Frame Maker 5.5 introduced drag and drop dialogs, first Japanese localized version with double byte support, PDF Mark support (PDF Mark embeds bookmarks, links, and cross-references into PDF files automatically), color libraries (DIC, Focal tone, Munsell, Pantone, Toyo and Traumatic), language is embedded into Paragraph Designer and Character Designer, and Table designer now supports sorting by row or column. Frame Maker 5.5.6 beta was also the only version to run on Linux, however there was never a final version released due to poor feedback from potential customers. It was also the last version available for IRIX.

g. **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.

h. **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.

i. **Frame Maker 7.1:-** Released in 2003. Frame Maker 7.1 was bundled with Distiller 6, and included more Open Type fonts and can import Quark and PageMaker documents. Frame Maker 7.1 on UNIX now uses PDF Lib and no longer relies on Distiller. Frame Maker 7.1 is only released on Windows and Solaris.

j. **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. It is bundled with Web Works 8, and Distiller 7 (UNIX version uses PDF Lib). In 2006 Adobe released officially supported Frame maker 7.2 application packs for DITA (Darwin Information Typing Architecture) and S1000D.

k. **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 bugs and errors.

l. **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 DAV based CMS integration through native HTTP path support.

m. **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 system support, scripting, automatically checking spelling, finding and changing overrides, using the table catalog,

repeating the last operation, setting a poster: In videos, drag and drop editing, creating read/write rules, configuring the maker.ini file, text drag and drop, background color and suppressing alerts.

n. **Frame maker 11:-** Released in July 2012. Frame maker 11 new features are Native XML Code View, Author View, XSLT 2.0 support, X Path 2.0 support, Rapid authoring, Comprehensive DITA support, Integration with Content Management Systems (CMSs), Publishing virtually anywhere, Smart Paste, WYSIWYG View, Object Styles, Enhanced video support, Hotspots, Assisted authoring with Banner Text and Linked 3D graphics.

7. 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 Publisher 2010 for Windows; there is no version for Macintosh.

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.

8. 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 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. While one publisher estimates that share has fallen to below 25% and Adobe in Design is now the market leader, QuarkXPress still has significant market share. There are open source competitors in the page layout space, the most notable of which is Scribus.

Version of QuarkXPress: -
In the beginning of 2003 Quark released a server version of QuarkXPress, called Quark DDS. This enables page editing and page layout in a web browser. QuarkXPress Server is often used for web-to-print in corporate intranets to enable customization and ordering of printed materials, advertising automation workflows in advertising agencies, catalog generation for retailers and variable digital printing for personalized marketing. It enables companies to print copies digitally when they need them, often with customized content. The system relies on XML. The server is often embedded in print on demand software. In 2006 Quark renamed Quark DDS to "QuarkXPress Server.

9. 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, I Studio Publisher 1.1.8, runs on Mac OS X 10.4 Tiger, 10.5 Leopard, 10.6 Snow Leopard and 10.7 Lion. I Studio 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. Studio Publisher has been designed to simplify desktop publishing and enable users to get started

quickly. Users are required to understand one main principle - each element of document content is held by a

shape. All shapes act as content containers and can contain any combination of text in columns, text around their outline path, an image, a line style, a fill style, a drop shadow and a text runaround ("wraparound"). Users can select and draw standard shapes from the Shape Library, construct shapes using the drawing tools provided, or create default shapes automatically when pasting, dragging in or inserting new content. Inspectors are provided to examine and adjust style and format settings of shapes, text and images. IStudio Publisher can export color managed PDF files suitable for use in a prepress workflow for professional print jobs. It can also export to EPUB or RTF file. IStudio Publisher has an XML based file format and supports Unicode character encoding. However, it does not yet support complex script rendering and cannot be used for languages written with Arabic, Hebrew, Indic and East Asian (CJK) writing systems. The official user guide "Introduction to IStudio Publisher" has been produced using IStudio Publisher and can be downloaded from the developer's website as an IStudio Publisher format (.ispx) document file, allowing users to see how it's been created. The user guide is also available in PDF format. Video tutorials and a Rapid Start Guide are also available. IStudio Publisher 1.0.4 received a generally favorable review by Macworld on Mar 9, 2009, although several expected features were found to be missing. The software developers have published a Development Roadmap of future IStudio Publisher updates, and users are invited to submit requests for improvements and new features.

10. 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. It has a number of page layout features and competes with leading commercial applications such as Adobe PageMaker, Page Plus, QuarkXPress or Adobe In Design. Scribus is designed for layout, typesetting and to prepare files for professional quality image setting equipment. It can also create animated and interactive PDF presentations and forms. Example uses include writing small newspapers, brochures, newsletters, posters and books. An official Scribus manual, published through FLES Books, has been available since 19 January 2009. Scribus supports all major bitmap formats, including TIFF, JPEG and Adobe Photoshop. Vector drawings can be imported or directly opened for editing. The long list of supported formats includes Encapsulated PostScript, SVG, Adobe Illustrator, or X fig. Professional type/image setting features include CMYK colors and ICC color management. It has a built-in scripting engine using Python. It is available in more than 24 languages. High-level printing is achieved using its own internal level 3 PostScript driver, including support for font embedding and sub-setting with TrueType, Type 1 and OpenType fonts. The internal driver supports full Level 2 PostScript constructs and a large subset of Level 3 constructs. PDF support includes transparency, encryption and a large set of the PDF 1.5 specification, as well as PDF/X-3, including interactive PDFs form fields, annotations and bookmarks. The file format, called SLA, is based on XML. Text can be imported from OpenDocument text documents, as well as OpenOffice.org Writer, Microsoft Word, PDB (Palm OS) and HTML formats (although some limitations apply). ODT files can typically be imported along with their paragraph styles, which are then created in Scribus. HTML tags which modify text, such as bold or italic will also be handled pretty well. So far, Word and PDB documents will only be imported as plain text. Although Scribus supports Unicode character encoding, it currently does not properly support complex script rendering and so cannot be with Unicode text for languages written with Arabic, Hebrew, Indic and South East Asian writing systems. In August 2012 it was announced that a third party had developed a system to support complex Indic scripts. The 1.6 version is expected to provide a better table implementation, PDF/X-1a, PDF/X-4 and PDF/E support. Footnotes, marginal notes and e Pub exporting are under development. Support for other programs and formats. Scribus cannot read or write the

native file formats of other DTP programs like QuarkXPress, Microsoft Publisher, or In Design; the developers feel that reverse engineering those file formats would be prohibitively complex and could risk legal action from the makers of those programs. Nonetheless, basic support for QuarkXPress Tag files and In Design's IDML, as well as In Copy's ICML formats has been added to the development branch. Due to licensing issues, the software package does not include support for the Pantone color matching system (PMS), which is included in some commercial DTP applications. Nonetheless, there are legal ways to obtain and incorporate Pantone colors within Scribus. Scribus is already being shipped with more than 100 color palettes, most of which have been donated by various commercial color vendors, but also include scientific, national or government color standards.

UNIT-II

Computer Graphics

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. Basically there are two types of computer graphics namely.

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.The term computer graphics includes almost everything on computers that is not text or sound. Computer graphics can be a series of images which most often called video or a single image. The definition of computer graphics is the technology that deals with designs and pictures on computers. So, computer graphics are visual representations of data displayed on a monitor made on a computer

Interactive Computer Graphics: Interactive Computer Graphics involves a two way communication between computer and user. Here the observer is given some control over the image by providing him with an input devicefor example the video game controller of the ping pong game. This helps him to signal his request to the computer.

The computer on receiving signals from the input device can modify the displayed picture appropriately. To the user it appears that the picture is changing instantaneously in response to his commands. He can give a series of commands, each one generating a graphical response from the computer. In this way he maintains a conversation, or dialogue, with the computer.

Interactive computer graphics affects our lives in a number of indirect ways. For example, it helps to train the pilots of our airplanes. We can create a flight simulator which may help the pilots to get trained not in a real aircraft but on the grounds at the control of the flight simulator. The flight simulator is a mock up of an aircraft flight deck, containing all the usual controls and surrounded by screens on which we have the projected computer generated views of the terrain visible on take off and landing.

Flight simulators have many advantages over the real aircrafts for training purposes, including fuel savings, safety, and the ability to familiarize the trainee with a large number of the world's airports.

Non Interactive Computer Graphics: In non interactive computer graphics otherwise known as passive computer graphics. it is the computer graphics in which user does not have any kind of control over the image. Image is merely the product of static stored program and will work according to the instructions given in the program linearly. The image is totally under the control of program instructions not under the user. Example: screen savers

Types of Graphics

There are two kinds of computer graphics - raster (composed of pixels) and vector(composed of paths). 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. 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. They are shown at four times actual size to exaggerate the fact that the edges of a bitmap become jagged as it is scaled up:
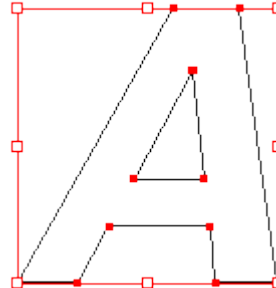
Bitmap Image: Vector Graphic:

Vector - Vector graphics 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. In vector graphics, the file that results from a graphic artist's work is created and saved as a sequence of vector statements. For example, instead of containing a bit in the file for each bit of a line drawing, a 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 files (which can, however, sometimes be reconverted to vector files for further refinement). Animation images are also usually created as vector files. For example, Shockwave's Flash product lets you create 2-D and 3-D animations that are sent to a requestor as a vector file and then rasterized "on the fly" as they arrive.

Raster - Raster graphics, also called bitmap graphics, are digital images that are composed of tiny rectangular pixels, or picture elements, that are arranged in a grid or raster of x and y coordinates (includes a z coordinate in case of 3D) in such a way that it forms an image. It is also referred to as bitmap since it has information that is mapped directly to the display's grid.

The file size of a raster image depends also on the size of the image, which is determined by the number of pixels being used in the image. This means that an image with a 1280x720 resolution will contain 921,600 pixels while a full HD 1920x1080 image will have 2,073,600 pixels, which will obviously give it a bigger file size when compared to the former. A raster file is usually difficult to modify without loss of information, although there are software tools that can convert a raster file into a vector file for refinement and changes. Examples of raster image file types are: BMP, TIFF, GIF, and JPEG files.

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 American Heritage should clear things up even further with this simple definition: "A complete set of type of one size and face."

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. A font is said to be fixed pitch if every character has the same width. If the widths vary depending on the shape of the character, it is called a proportional font.

Most applications that support text enable you to choose from among many fonts. 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.

The other method utilizes a vector graphics system to define fonts. 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. The most widely used scalable-font systems are PostScript and TrueType.

Aside from the scalability of vector fonts, their other main advantage over bit-mapped fonts is that they make the most of high-resolution devices. 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 (which are low-resolution when compared with laser printers). Many computer systems, therefore, use bit-mapped fonts for screen displays. These are sometimes called screen fonts. In addition, some professionals prefer to use bit-mapped fonts on high-resolution printers because characters can be individually tailored to the printing device.

An additional drawback of vector fonts is that every character must be generated as it is needed. This is a computation-intensive process that requires a powerful microprocessor to make it acceptably fast.

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.

Classifications of Type fonts:
Serif Type Styles
1. Old Style
2. Transitional
3. Neoclassical & Didone
4. Slab

   5. Clarendon
   6. Glyphic
Sans Serif Type Styles
   1. Grotesque
   2. Square
   3. Humanistic
   4. Geometric
Script Type Styles
   1. Formal
   2. Casual
   3. Calligraphic
   4. Blackletter & Lombardic
Decorative
   1. Grunge
   2. Psychedelic
   3. Graffiti

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.
- Unscaled 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.

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.

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 :

1) 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.

2) 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.

3) 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.


4) 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.
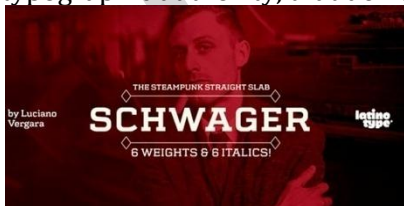

5) Hand drawn

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.
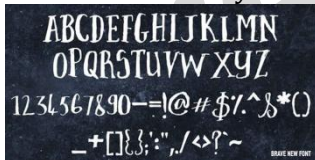
6) Script

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.
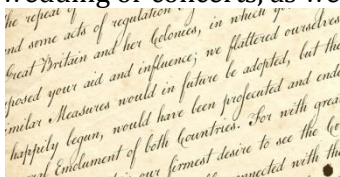
7) Retro

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 often used as bold headlines in vintage and classic posters, logos and packaging.

8) 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. Find a good one, learn what's in it, and keep it handy.

9) 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.

10) 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.

11) 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. You'll also want to be aware of suitability in whatever project you're working on, ie., you don't want the usual light-hearted comic font if

you're interested in relaying a more serious subject matter.

12) 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 linecasting 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.


13) 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.
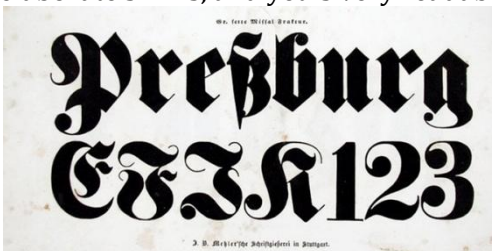
14) Calligraphic

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.
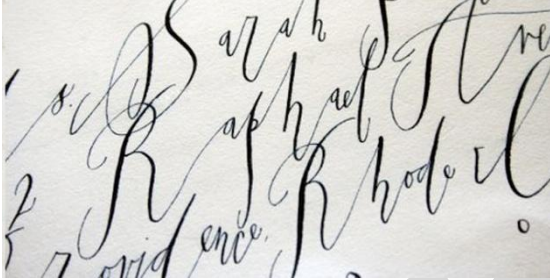

15) Typewriter

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. These types of fonts never quite go out of style.
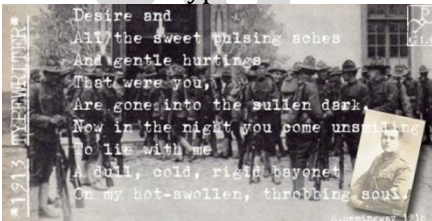
16) Pixel

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.
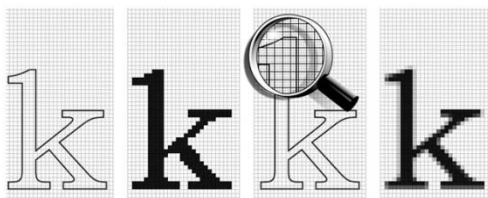
17) Grunge

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.

PRINTERS
A printer is any device that prints text or illustrations on paper. There are many different types of printers.

Printer Characteristics
Printers are also classified by the following characteristics:

- **quality of type:** The output produced by printers is said to be either letter quality (as good as a typewriter), near letter quality, or draft quality. Only daisy-wheel, ink-jet, and laser printers produce letter-quality type. Some dot-matrix printers claim letter-quality print, but if you look closely, you can see the difference.
- **speed:** Measured in characters per second (cps) or pages per minute (ppm), the speed of printers varies widely. Daisy-wheel printers tend to be the slowest, printing about 30 cps. Line printers are fastest (up to 3,000 lines per minute). Dot-matrix printers can print up to 500 cps, and laser printers range from about 4 to 20 text pages per minute.
- **impact or non-impact:** Impact printers include all printers that work by striking an ink ribbon. Daisy-wheel, dot-matrix, and line printers are impact printers. Non-impact printers include laser printers and ink-jet printers. The important difference between impact and non-impact printers is that impact printers are much noisier.
- **graphics:** Some printers (daisy-wheel and line printers) can print only text. Other printers can print both text and graphics.
- **fonts :** Some printers, notably dot-matrix printers, are limited to one or a few fonts. In contrast, laser and ink-jet printers are capable of printing an almost unlimited variety of fonts. Daisy-wheel printers can also print different fonts, but you need to change the daisy wheel, making it difficult to mix fonts in the same document.
- In terms of the technology utilized, printers fall into the following categories:
- **daisy-wheel**: Similar to a ball-head typewriter, this type of printer has a plastic or metal wheel on which the shape of each character stands out in relief. A hammer presses the wheel against a ribbon, which in turn makes an ink stain in the shape of the character on the paper. Daisy-wheel printers produce letter-quality print but cannot print graphics.
- **dot-matrix**: Creates characters by striking pins against an ink ribbon. Each pin makes a dot, and combinations of dots form characters and illustrations.
- **ink-jet**: Sprays ink at a sheet of paper. Ink-jet printers produce high-quality text and graphics.
- **laser**: Uses the same technology as copy machines. Laser printers produce very high quality text and graphics.
- **LCD & LED :** Similar to a laser printer, but uses liquid crystals or light-emitting diodes rather than a laser to produce an image on the drum.
- **line printer**: Contains a chain of characters or pins that print an entire line at one time. Line printers are very fast, but produce low-quality print.
- **thermal printer**: An inexpensive printer that works by pushing heated pins against heat-sensitive paper. Thermal printers are widely used in calculators and fax machines.

1. **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.

A 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.

2. 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 printheads 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.

An 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.

Plotter

A **plotter** is is a vector graphics printing device that connects to a computer.

Plotters print their output by moving a pen across the surface of a piece of paper. This means that plotters are restricted to line art, rather than raster graphics as with other printers. They can draw complex line art, including text, but do so very slowly because of the mechanical movement of the pens. (Plotters are incapable of creating a solid region of colour; but can hatch an area by drawing a number of close, regular lines.)

Another difference between plotters and printers is that a printer is aimed primarily at printing text. This makes it fairly easy to control, simply sending the text to the printer is usually enough to generate a page of output. This is not the case of the line art on a plotter, where a number of printer control languages were created to send the more detailed information like "draw a line from here to here". The most popular of these is likely HPGL.

Early plotters (e.g. the Calcomp 565 of 1959) worked by placing the paper over a roller which moved the paper back and forth for X motion, while the pen moved back and forth on a single arm for Y motion. Another approach (e.g. Computervision's Interact I) involved attaching ball-point pens to drafting pantographs and driving the machines with motors controlled by the computer. This had the disadvantage of being somewhat slow to move, as well as requiring floor space equal to the size of the paper, but could double as a digitizer. A later change was the addition of an electrically-controlled clamp to hold the pens, which allowed them to be changed and thus create multi-colored output.

For a time in the 1980s smaller "home-use" plotters became popular for experimentation in computer graphics. But their low speed meant they were not useful for general printing purposes, and you would need another conventional printer for those jobs. With the widespread availability of high-resolution inkjet and laser printers, plotters have all but disappeared.

Plotters were also used in the Create-A-Card kiosks that were available for a while in the greeting card area of supermarkets.

Plotters are used primarily in technical drawing and CAD applications, where they have the advantage of working on very large paper sizes while maintaining high resolution. Another use has been found by replacing the pen with a cutter, and in this form plotters can be found in many garment and sign shops.

A niche application of plotters is in creating tactile images for visually handicapped people on special thermal cell paper.

Note that in many of today's environments, plotters in the traditional sense have been supplanted with (and, in many cases, obsoleted by) large-format inkjet printers.

Scanners

A scanner is a device that captures images from photographic prints, posters, magazine pages, and similar sources for computer editing and display. Scanners come in hand-held, feed-in, and flatbed types and for scanning black-and-white only, or color. Very high resolution scanners are used for scanning for high-resolution printing, but lower resolution scanners are adequate for capturing images for computer display. Scanners usually come with software, such as Adobe's Photoshop product, that lets you resize and otherwise modify a captured image.

A scanner is an optional piece of computer hardware that uses reflected light to capture images and translate them into files a computer can read and display. Scanners come in high- and low-resolution versions, and can scan images in either black-and-white or color. The basic functions of a scanner can be adapted to a wide variety of uses, depending on your needs.

Scanners usually attach to your personal computer with a Small Computer System Interface (SCSI). An application such as PhotoShop uses the TWAIN program to read in the image.

People use scanners to store their hand held pictures in their computer, and one might scan a document for business, school, etc.

The two main types of scanners are flatbed and portable scanners.

A flatbed scanner is the most common type of scanner, and it is designed to scan flat objects.

A portable scanner is designed for travel purposes.

A sheet fed scanner is much like the flatbed scanner, only this may now be immobile and be used in stores to scan items on shelves.

Optical scanners capture the image of a usually flat object and transfer it to a computer, much like flatbed scanners. In order to produce a better quality image, as most people strive for in their printing, you need a higher resolution scanner.

The resolution of a scanner is measured in dots per 12-inches, which makes sense because the more dots you have, the more color that shows up, producing higher quality scans.

Along with the resolution of a scanner comes the quality, which can be edited and improved once the image is scanned. If the user wants an extremely detailed scan, the drum scanner is a great tool to make this possible.

It uses a photomultiplier tube to scan on a glass cylinder and send light rays in three beams, making light and color change and producing greatly detailed images.

<div align="center">

UNIT-III

</div>

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.

2. 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.

3. 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.

1. 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.

2. 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.
1. 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).
2. Navigate to the location of your image file.
3. 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.
1. 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.
2. 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:
1. Create a new document by going to the File menu, and selecting New.
2. In the Document Setup dialog box divide the dimensions of your paper in half.
3. 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:
1.Go to the Utilities menu select Plug-ins and then Build Booklet.
2.Select 2-up Saddle Stitch I.
3.Insert any blank pages if your document is an odd number (PageMaker should automatically create them).
4.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.
a. Select the font which style you want to change into normal.
b. 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).
a. Select the text, which you want to change in to supper script or sub script.
b. 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)

a. Select the text line which leading you want to change.

b. 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.

a. Select the text which width you want to change.

b. 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:

A. 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.

B. 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.

C. 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.

D. 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.

Control palette of line object:

Control palette of object:

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:
1. Type your text.
2. Select the text (by text tool)
3. Then click on anyone color as you like.

To apply the color on the object:
Steps:
1. Draw anyone object.
2. Select that object (by pointer tool)
3. Press ctrl + J.
4. Click on the fill color icon on the color palette.
5. Click on the color which you want.

How to insert picture?
Steps:
1. Click on the file menu.
2. Click on the place command or press ctrl + D from keyboard.
3. Choose anyone picture which you like.
4. Click on ok button.
5. Finally drag your mouse.

After inserting picture:
To crop your picture:
Steps:
1. Select the picture.
2. Press ctrl + K from keyboard.
3. Click on high resolution option.
4. Click on ok button.
5. Select crop tool.
6. Now drag your mouse on the picture from the selection point.

How to insert picture in the star shape?
Steps:
1. Click on file menu.

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

Note: If star shape is not full filled by the picture position your pointer tool on the selection point and drag your mouse to full fill the star shape by picture.

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:
1. Create your document and draw any object then save it.
2. Now draw any other objects don't save it.
3. Click on file menu.
4. 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:
1. Click on file menu.
2. Click on place command or press **Ctrl + D** from keyboard.
3. Then its dialog box will appear.
4. Choose anyone file of picture.
5. Finally click on open button.
6. 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:
1. Join your scanner and insert the image into the scanner.
2. From the file menu choose Acquire and Acquire image.
3. Then save dialog box will appear. Type the file name and choose directory where you want to save.
4. Then click overt the save button.
5. After a few second scanner program will be active.
6. In that scanner's dialog box click over the preview button.

7. Then after a few second when your image will appear in full size then select it and click on the scan button.
 8. 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.
1. Make your file.
2. 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.
a.   Inch: This is the default measurement system.

b.   Decimal inch: The ruler display by 10 tick marks where the page view allows to the inch and values are created in decimal.

c.   Millimeters: 25.4 millimeters = 1 inch.(it is the best measurement to cerate any design in PageMaker.

d.   Picas: There are 12 pointes to the pica and 6 picas to the inch.

e.   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:
1. Insert the picture.
2. Click on file menu.
3. Click on link manager command.
4. Then its dialog box will appear.
5. Click on "info" button.
6. Choose anyone picture.
7. Click on open button.
8. 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:

1. Click on layout menu.
2. Click on sort command.
3. Select the page which you want to arrange.
4. Drag the selection page or publication to the another location where you want
5. 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:

1. Click on layout menu.
2. Click on column guides option.
3. Then its dialog box will appear.
4. 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.
5. Click on ok button.

Copy Master Guide:

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

Steps:

1. Click on the layout menu.
2. 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:

1. Type some text.
2. Click on layout menu.
3. "On" the tick mark on the auto flow option.
4. Click on the over flow text button by pointer tool
5. 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:
1. Click on layout menu.
2. Click on go to page command or **Ctrl + Alt + G** from keyboard
3. Then go to page dialog box will appear.
4. In this dialog box type the number of page where you want to go.
5. 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:
1. From the layout menu choose insert pages option.
2. Then its dialog box will appear in this dialog box type the number of page how much you want to insert.
3. 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:
1. Click on layout menu.
2. Click on remove page option.
3. Type the range of pages how many pages you want to remove.
4. 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:
1. Draw any object (like line or anyone)
2. Copy that line or object.
3. Click on edit menu.
4. Click on "paste multiple" command.
5. Now set the pasting properties (how many object you want to paste and ser the space between tow object in this dialog box)
6. 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:
1. Click on edit menu.
2. Click on insert object command.
3. Choose anyone application such as bitmap.
4. Click on ok button.
5. Now draw any picture.
6. Finally close the Ms-paint.
7. 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:
1. Click on edit menu.
2. Click on edit story command or press ctrl + E from keyboard.
3. Type some text.
4. Press Ctrl + E.
5. Now drag your mouse.

How to check spelling and grammar?
a.   Type the document and from the edit menu choose story.
b.   Then edit story page will appear
c.   From this page choose utility menu then choose spelling or press **Ctrl + L** then its dialog box will appear.
d.   In this dialog box click over the start button then it will show the possible correct spelling.
e.   From this list of possible spelling list choose correct spelling and click over the replace button.
f.   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:
1. Type long text.
2. Select that text.
3. Click on type menu.
4. Click on leading command.
5. 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:
1. Type the text.
2. Select the text.
3. Click on type menu.
4. Click on horizontal scale command.
5. 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:
1. Type some text.
2. Select the text.
3. Click on type menu.
4. Click on character command or press **Ctrl + T**.
5. Now set the different types of font setting like color, bold, italic, underline, horizontal scale, leading
etc.
6. Finally click on ok button.

Paragraph (Ctrl + M)
Sets the paragraph level attributes for a single paragraph for text placed into PageMaker.
Steps:
1. Type the text.
2. Select that text.
3. Click on type menu.
4. Click on paragraph command or press **Ctrl + M.**
5. Now set the paragraph setting like left, right, center, justify, before, after etc.
6. 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:
1. Type the text.
2. Select the text.
3. Click on type menu.
4. Click on indent and tab command or press ctrl + I from keyboard.
5. 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:
1. Select the paragraph and Click on type menu.

2. Click on hyphenation command.
3. Click on "on" option.
4. Click on ok button.
5. Now start to type your text.

UNIT-IV
MULTIMEDIA

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.

fontstyle: 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.

1. Pictures, photographs and 3D pictures
2. Background
3. Button
4. Charts
5. Flow charts
6. 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:
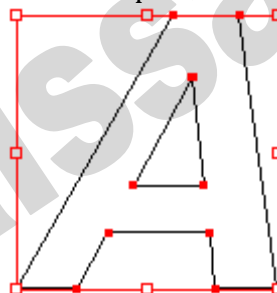
Graphic image quality

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:
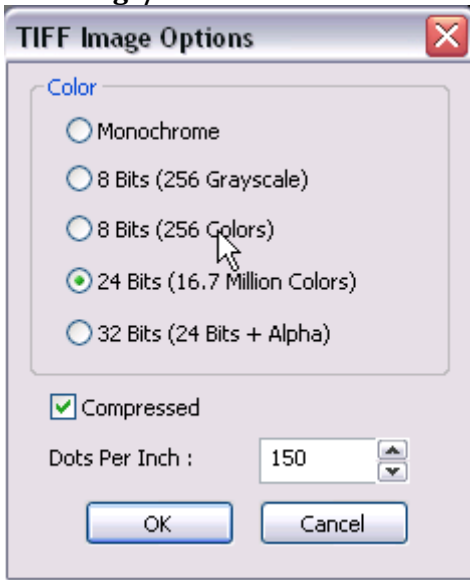
TIFF applies lossless compression of file.

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.
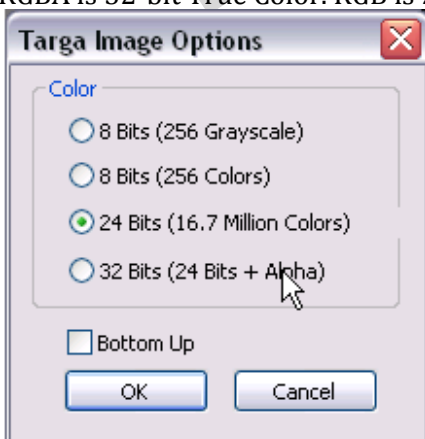
PNG (Portable Network Graphics):
The Portable Network Graphics (PNG) file format is an excellent file format for lossless, portable, and well-compressed storage of bitmaps. It takes up a minimum amount of disk space and can be easily read and exchanged between computers. The Portable Network Graphics 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
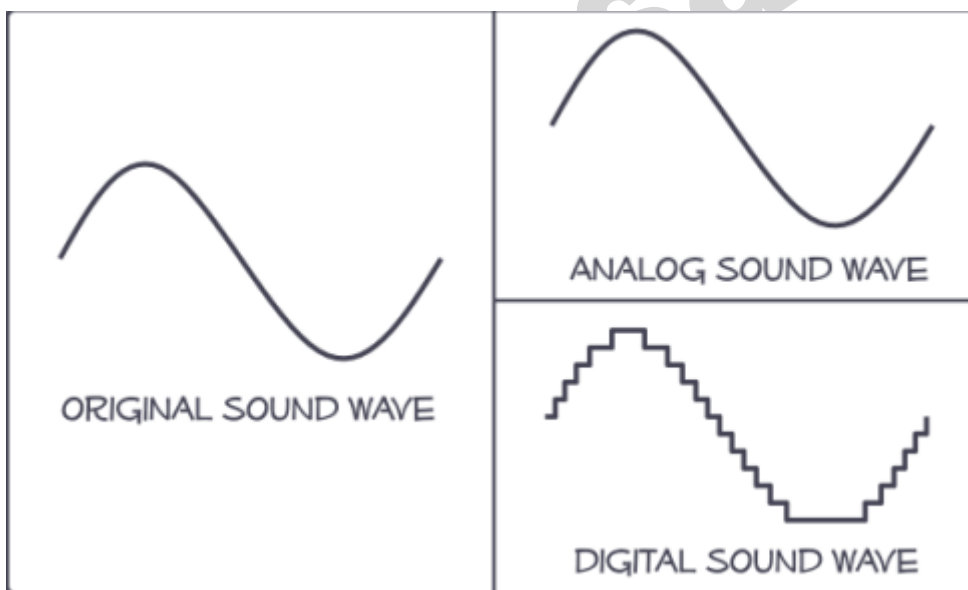
Animation

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. www.careerswales.com Page 2 • 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

</div>

Features for a Multimedia System

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
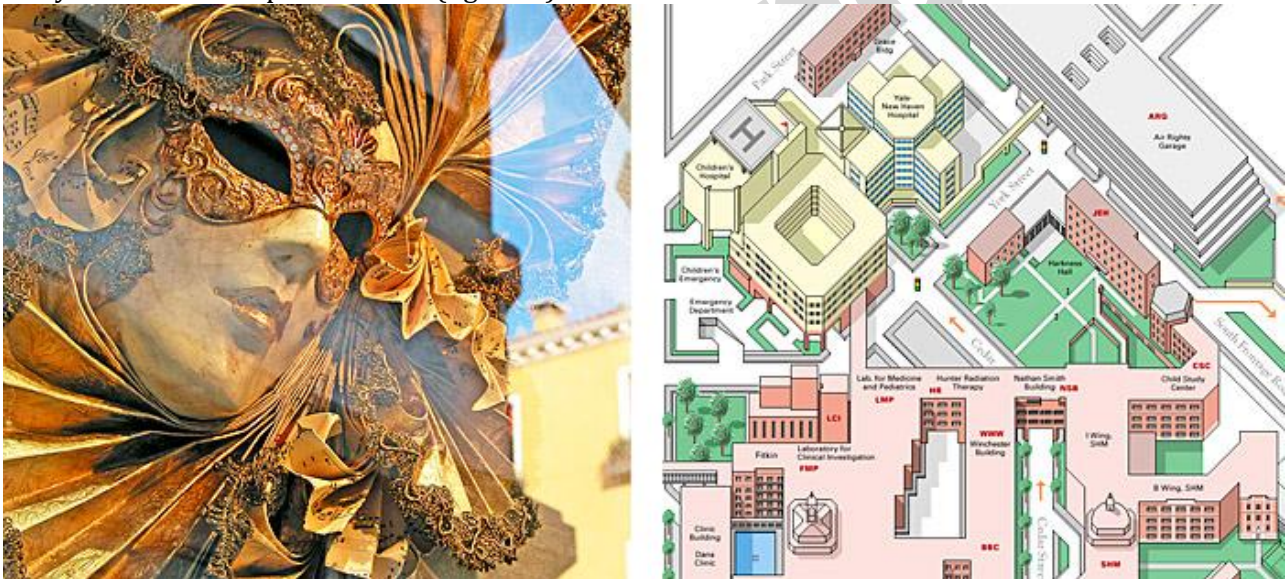
GIF Graphics
The CompuServe Information Service popularized the Graphic Interchange Format (gif) in the 1980s as an efficient means to transmit images across data networks. In the early 1990s the original designers of the World Wide Web adopted gif for its efficiency and widespread familiarity. Many 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 (fig. 11.4).

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 gif image 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, (i) 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
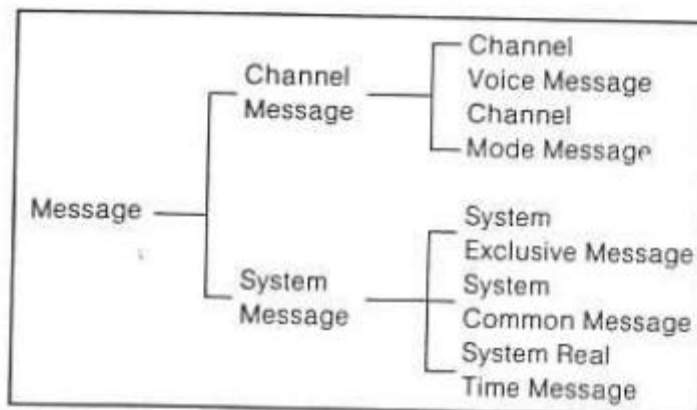
◼ Channel Message

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.