BCA-305
MULTIMEDIA TOOLS AND APPLICATIONS

Max marks-50 Min marks - 20

UNIT-I

Multimedia: Needs and areas of use, Development platforms for multimedia - DOS, Windows, Linux. Identifying Multimedia elements - Text, Images, Sound, Animation and Video, Making simple multimedia with PowerPoint

Text - Concepts of plain & formatted text, RTF & HTML texts, using common text preparation tools. Conversion to and from various text formats, Using standard software, Object Linking and Embedding concept. Basics of font design. overview of some fonts editing and designing tools, Understanding & using various text effects.

Images - importance of graphics in multimedia, Vector and Raster graphics, image capturing methods -- scanner, digital camera etc. various attributes of Images - size, color, depth etc, Various Image file format - BMP, DIB. EPS. GIF. PEX. PIC, JPG, TGA, PNG and TIF format - their features and limitations, graphic file formats conversions. processing images with common software tools such as Photoshop, Paint Shop pro, Corel draw etc ..

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.

Hardware for Multimedia Playback

Multimedia Marketing Council (MMC) has come out with specification for multimedia PCs which can assure a quality playback of multimedia productions. These are known as Multimedia PC specification. Playback requires smaller amount of resource, enough for viewing quality multimedia presentation.
Pentium I class processor 8 MB of RAM, 32 MB recommended.

Hard disk with 540 MB space with 15ms access time.
Video display adapter with 800x600 resolutions with 16.7 million colors.
CD ROM drive with at least 4x speed 36X speed recommended.
Sound card with speaker attached.
Keyboard and two button mouse.
Windows 9x and above with media player.
in some cases application programs such as web browser, media players (Quick time movie player, real media player) and document readers (PowerPoint viewer, adobe acrobat reader) might be required to display additional content.

Hardware for Multimedia Production

Pentium IV class processor 512 MB of RAM, 1024 MB recommended.
Hard disk with 40GB to 80 GB space with 15ms access time.
Video display adapter with 800x600 resolutions with 16.7 million colors 256MB video RAM, 512 MB video RAM recommended.
CD/ DVD RE-WRITER drive with at least 4x speed 36X speed recommended.
Sound card with speaker attached and microphone to record voice.
Keyboard and two button mouse, a scanner, TV tuner, video capture card to convert analog video to digital video, digital video camera, and digital camera.
Windows 9x and above with:-
Image editing softwares- **Adobe Photoshop**
2d Vector Graphics editing software**- CorelDraw.**
Audio editing softwares -**Audacity**/ Cool Edit / Sound Forge.
Video Editing Software – **Adobe Premier**/ Adobe Aftereffects
2d-Animation software- **Macromedia Flash**.
3d-Animation software**- 3d Studio Max**.
Authoring software to integrate multimedia presentation-**Macromedia Director.**
in some cases application programs such as web browser, media players (Quick time movie player, real media player) and document readers (PowerPoint viewer, adobe acrobat reader), and web content creator (FrontPage, macromedia dream weaver) might be required to display additional content.

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). .

Steps of creating multimedia Presentation

Choosing a topic: first of all you should select the topic on which you want multimedia presentations.
Writing a Story: a story will describe the overall content for the presentation. The focus should be on what the author wants to communicate to his audience.
Writing Script: while writing script the author should visualize content in terms of frames or screen. What is to be displayed on the first screen? This requires subject matter of the story should be divided into chapter, section, topic and deciding which frame or screen will have text, graphics, image, animation or audio.

Preparing a storyboard: the storyboard depicts what should be the layout for each screen within the presentation. it displays information about the background color or image, appearance of the navigational buttons or menu items, the location and size of the graphics and text, the durations of the voice etc.
Preparing flow line: a flow line depicts the navigational pathways with the presentation. Each page is represented as a rectangular block and a directed line with arrow head from one block to another means that second page is accessible from the first via some navigational element. Usually the flow line will have an inverted tree structure with the menu page at the top and the other pages as leaf nodes arranged at various hierarchical levels. E.g. chapters, sections, topics.
Implementation: the story, script, story board and flow line comprise of the design documents on which the actual presentation will be based. Implementation requires collection of existing media items and creating new one. Editing of media items may be needed to suit current presentation requirement then multimedia authoring tool is used to integrate media items.
Testing and feedback: after the implementation phase is completed, an important step of testing and feedback should be done for improving the quality of the presentation.
Final delivery: the final phase in the production schedule is the delivery of the application to the intended client.

Development Platforms for Multimedia

When evaluating a platform for multimedia delivery, one must take into account how well that particular computing environment implements and supports the technologies that make multimedia computing possible. Hardware support, however, is not necessarily the most important criterion. Other factors, including the availability of authoring software and the installed base of computing equipment within the user's environment

1. DOS & Windows as a development platform for multimedia: The current minimum specifications for the DOS platform have been established by the Multimedia PC Marketing Council as a 486SX-25 with 4 MB of RAM (8 recommended), 160 MB hard drive, standard VGA, 16 bit sound, and a 300 kB/s CD-ROM drive. As much of the DOS based multimedia software runs under Windows, additional RAM would likely be required beyond the recommended 8 MB, bringing the price of a basic machine somewhat higher than the basic Macintosh machine.

Macintosh platform promised a graphical interface and a commitment to the easy inclusion of audio, video, animation and other graphical images, particularly through Apple's support for multimedia and the required hardware. The IBM/MS-DOS platform, pre Windows, still in 1989, did not appear to be as advanced graphically.

The release of Microsoft's Video for Windows in 1992 provided a foundation for bringing digital video to the DOS platform. Video for Windows makes it possible to play digital video sequences on any computer running Windows 3.1 without the need for additional hardware. The package also includes a utility for capturing video from an external source, such as a video camera or a video cassette recorder, when the development machine is equipped with both a video capture board and a digital sound card to handle the capture process.

A good developer would prepare the multimedia courseware using a high level (fast processor and large memory) machine, but in such a way that presentation could be done on a lower level machine.

QuickView Pro

QuickView Pro 2.58 supports viewing picture and movies on dos platform and full screen movies and picture without requiring windows.

DOS multimedia Viewer

SUPPORTED VIDEO FORMAT: AVI (incl. DivX), MPG, MOV, DL, CEL, FLI, FLC
Animated GIF, VideoCD and CD-I
SUPPORTED PICTURE FORMAT: BMP, GIF, JPG, PCX, TGA and more
SUPPORTED AUDIO FORMAT: MP1, MP2, MP3, Ogg Vorbis, VOC, WAV

MPEGone DOS MPEG and VideoCD player

Supported formats are MPEG files with suffix .MPG, .M1V, .MPE, .MPV and .DAT. DAT files are files from the VideoCD that are usually named AVSEQ01.DAT and so on. VideoCDs and CD-i (partly) are supported using the /VCD command.

2. Linux as Multimedia Development Platform:

Audacity [Free]
Audacity is a free, easy-to-use audio editor and recorder for Windows, Mac OS X, GNU/Linux, and other operating systems. You can use Audacity to: Record live audio, Convert tapes and records into digital recordings or CDs, Edit Ogg Vorbis, MP3, and WAV sound files, Cut, copy, splice, and mix sounds together, Change the speed or pitch of a recording, and more!

GIMP [Free]
GIMP (GNU/General Image Manipulation Program) is a free, robust, powerful image manipulation program suitable for such tasks as photo retouching, image composition and image authoring.

ImageMagick [Free]
A collection of tools for image conversion, annotation, composition, animation, and creating montages. It allows the user to read, write, and manipulate over 87 major image formats (e.g., GIF, JPEG, PNG, PDF, TIFF, PhotoCD)

IIRC, blender
It is a 3D rendering tool for linux and 2D stuff can be handled by the GIMP.

K3D
It is Animation Package available on Linux Platform.

MetaCard
It is a multimedia authoring tool and GUI development environment for Microsoft Windows 3.1/95/98/Me/NT/2000/XP, Unix/X11(Linux), and Macintosh systems. Using MetaCard is the easiest way to build graphical applications, Computer Based Training (CBT), on-line documentation, and a wide variety of other products.

Entertainment tools in Windows

Windows O.S. has all types of entertainment facility, such as watching a movie, listening to a song etc. The following process is followed to open the Entertainment.
Start-> Programs ->Accessories -> Entertainment
There are different types of entertainment inside this Entertainment program, which you can view the right side by clicking on Entertainment, such as -> CD player, Media player etc.

CD Player

Running the audio CDs - Your CD ROM drive can play music also. To start the CD player, click the Start button, then select the programs -> Accessories -> Entertainment -> CD player.
CD player runs because of the sound card fitted in the CPU.

Play - First, and above all the Play button blurs out as the CD runs.
Pause - This is used to pause your playback when you go somewhere leaving the computer.
Stop - When you get bored listening to the song, this button is used.
Previous track - This button will take CD to the previous track.
Skip back - Every time you click this button you get one second back in the song.
Skip forward – Every time you click this button, you will get one second forward.
Next Track - This button will immediately take you to the next song.
Eject - This button will pop out your CD.
Editing the Play list - You can edit the play list of your music CD. Only play those tracks that you want to listen and in the order you want to listen.

To edit the CD list insert the CD in the drive and open the CD player. Then do the following procedure:
1. Click the disc menu and select the Edit Play list, you will view a dialog bo~.
2. To clear all the entries on the Play list, click "clear all buttons."
3. Click twice on the desired track in the Available Track list box. They will enter into the Play list
4. Click on any of the desired track.
5. Click on Set Name button.
6. Write the name in the text box.
7. Click on the Set Name button replace the desired track by the name in the Available Track list and the Play list Do just the same for other tracks.
8. Click the Artist text box and write the name. Highlight the Title text box and enter the name of the CD.
9. Click OK.

Media Player

It is used with the Sound Recorder. Media layer displays the picture for Winows animated files (avi), sound files (.wav), MIDI files (Mid and RMI) or for the CD you listen to. To listen to such songs on the media player, Click on the Start button. Then select the

program -> Accessories -> Entertainment -> Media Player.

Playing the Files - Windows is capable of playing different types of Multimedia files. Complete the following process to play one file.
1. Pull down the Device menu in the dialog box of Media player and select the type of the file which you want to play.
2. Locate the file you want to play and click twice. Make the file of the type box definite.
3. Click on the Play button.

Volume Control- It is a kind of system tool which is used to control the sound. If your computer has more than one device, for example, Midi Wave Device, you can control the sound of it through this system tool.
Use of Volume Control- It is used to control the sound of all the devices present in the computer.
This system tool provides such facility so that it can change the sound control of both the speakers. For it, it has a balance slide speakers. Mute Option button too is given, clicking on which you may stop sound. To start it :
Start -> Program -> Accessories Entertainment -> Volume Control.

Sound Recorder - It is also Multimedia software. It can be used for both, listening to the sound and recording it. A Microphone is required to record the sound.
To Start the Sound Recorder click start -> Setting -> Control Panel and click the sound Icon. It will open the sound properties.

Making own Sound File - You can use sound recorder to make your own sound file from CD ROM player or Microphone which can be added to Windows. This process is as follows:

1. Click the Start button, then select the Program -> Accessories -> Entertainment -> Sound Recorder.

2. Select New from the file menu of the sound recorder.

3. Click the deep red button to start the recording.

4. Start the CD or start talking on the microphone.

5. To stop the recording, click the deep black square button.

6. Select Save from the file menu to save the sound Clip.

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.

Using Common Text Preparation Tools

Word processing programs, such as Microsoft word and WordPerfect, are useful in creating text for titles that are text intensive. Once text is created in a word processing program, it can easily be copied to a multimedia title.

If the title is not text intensive, it may be more efficient to use graphics programs such as CorelDraw, Photoshop to create stylish text. Both CorelDraw and Photoshop allow coloring the text, set fonts, point sizes, and type styles and various text effects can be applied. You can apply distorting and animation effect.

Font packages can be purchased that provide a variety of specialized fonts. You can use font editor (e.g. Fontographer) to create your own font or edit some font.

You can use scanner with Optical Character Reader program to capture the desired text. You can download electronic files from internet to collect text and you can use Object linking and embedding or cut-copy-paste to bring text.

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..

Concept of Object Linking & Embedding

Linking and embedding allows to use object created in other application program(source application) to be used in current application(client application) file. Linking and embedding allows different parts of the document created in different application

programs.

Linking requires existence of a file. Changes performed in source file gets reflected in client file.

Embedding doesn't require existence of a file. Changes performed in source file doesn't get reflected in client file.

Creating an embedded/Linked Object

Click in the document where you want to place the embedded object.

On the **Insert** menu, click **Object**, and then click the **Create New or Create from File** tab. To create embedding do not select link to file option

In the **Object type** box, click the type of object you want to create.

> Only programs that are installed on your computer and that support linked objects and embedded objects appear in the **Object type** box.

To display the embedded object as an icon — for example, if others are going to view the document online — select the **Display as icon** check box.

To link or embed the object, do one of the following:

Select the object and use edit->copy command.

select document where you want to place the copied object.

On the **File** menu, click **Paste Special**, and then click the **Paste(for embedding) or Paste Link (for linking)**.

To display the embedded/linked object as an icon — for example, if others are going to view the document online — select the **Display as icon** check box.

Points to remember when using text in Multimedia Presentation

Make it readable: a decorative font may be attractive it may also be hard to read. Although it may seem important to include a great deal of text, filling screen with text or reducing the size of the type to accommodate text might make it non-readable. Serifs fonts are more readable than Sans Serif. 10 point and 12 point size are quite common in use. Title text may 16 point size. 72 points make 1".
headings : 14 to 18 points
subheadings: Half the heading size
Text blocks: 10 to 12 points.

Consider type style and color to make emphasize on text such as bold, italic, underline.

Don't use too many fonts and font sizes keep uniformity in font, font size and style.

Overview Of Some Font Editing And Designing Tools

Special font editing tools can be used to make you won type, so you can communicate an idea or graphic feeling exactly. With these tools, professional typographers create distinct

text and display faces. Graphic designers, publishers, and ad agencies can design instant variations of existing type face.

Three dimensional modeling programs allow you to create a character, add depth to it or extrude it, shade and light it, and manipulate it into other shapes.

Macromedia director allows spinning of text it its place. Cool3d and Vertigo 3D HotText let you extrude, twist and rotate character and adjust light and texture effect for high-impact 3-d titles. Two of the popular font editors are FontCreator and Fontographer.

Fontographer:

Fontographer supplied by macromedia is a specialized graphics editor for both Mac and Windows platforms.

Features:

You can use it to develop PostScript, True Type and bitmapped fonts for Mac and windows etc.

Designers can also modify existing typefaces, incorporate PostScript artwork, automatically trace scanned images and create designs from scratch.

It includes freehand drawing tool to create professional and precise inline and outline drawings of calligraphic and script character, using either the mouse or alternative input methods.

It allows the creation of multiple font designs from two existing typefaces, and you can design lighter or heavier fonts by modifying the weight of an entire typeface.

You can create condensed, expanded and oblique version of the same font or modify any of those fonts to suit your design needs.

One character, several characters or entire fonts can be scaled, rotated, and skewed to create new and unique typefaces.

A metric window provides complete control over character width, spacing, offset, and kerning.

FontCreator

FontCreator puts font creation within the grasp of the average PC user, typographers and graphic designers. The editor lets you easily select and modify the entire character set of any TrueType font and fonts based on OpenType font technology. Features include the ability to convert images to outlines, thus enabling you to create fonts with your own signature, logo and handwriting. The sensitive interface makes FontCreator the perfect tool for both new and experienced users. The advanced validation features make the design process easy and help you avoid common mistakes.

1.The most impressive new feature that makes designing fonts so much faster is direct import of vector based images.
2. Create and edit TrueType and OpenType fonts.
3. Redesign existing characters and add missing characters.

4. Convert vector and raster based (e.g. a signature, logo or handwriting character) into outlines.
5. Edit or regenerate font names and fix character mappings.
6. Correct fonts that display incorrectly add or correct composite glyphs.
7. Generate, modify and clean up kerning pairs.
8. Transform individual glyphs or an entire font (e.g. to make a bold version) and Preview fonts before installing.
9. Install fonts in Windows, Split TrueType Collection or Extra TrueType Fonts from TrueType collection.

Multimedia: multimedia is combination of text, graphic, and audio elements into a single collection or presentation.
Interactive Multimedia: multimedia becomes interactive multimedia when you give the user some control over what information is viewed and when it is viewed.
Hypermedia: Interactive multimedia becomes hypermedia when its designer provides a structure of linked elements through which a user can navigate and interact.
Hypertext System: when a hypermedia project includes large amount of test or symbolic content, this content can be indexed and its elements then linked together to afford rapid electronic retrieval of the associated information. When words are keyed or indexed to other words, you have a hypertext system.

Using Scanner To Scan Text In Editable Format

The HP Scanning software uses optical character recognition (OCR) to convert text on a page to text that you can edit with a word processing program. The OCR software is installed automatically when you install the HP software.

1	Start the HP Solution Center.
2	Click **Scan Document**.
3	In the HP Scanning software, do one of the following tasks:
•	In the **Scan to** drop-down list, click a word processing software program, such as Microsoft Word.
•	In the **Scan to** drop-down list, click **Save-to-file**, and then select one of the following file types:
–	Rich Text Format (*.rtf)
–	Tiff Format (*.tiff)
–	PDF (searchable) (*.pdf)
–	Text File (*.txt)
–	HTML (*.html)
Note	A searchable PDF does not contain editable text, but OCR is used to make the text in the PDF searchable.
4	Click **Scan**.

If a preview is displayed, make any adjustments to the scan that you want, and then click **Accept**.

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

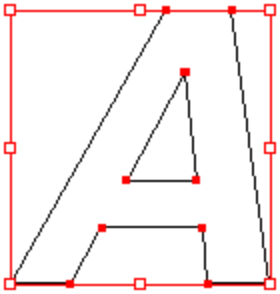
There are two categories of graphics: draw-type and bitmaps. Draw-type graphics, also

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.

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.
Filters- the program has filter for sharpening, softening and stylizing the image.
antialiasing the program support antialiasing

Format	Color Mode	B/W 1 bit	Grayscale	Color	Alpha Channel	Background Transparency provided
BMP	RGB, Indexed, Grayscale, Bitmap	1		4,8,16,24 bit color		
EPS	LAB. CMYK, RGB, Indexed, Duotone, Grayscale, Bitmap					
DIB		1		4,8 bit color with RLE compression		
PICT	RGB, Indexed, Grayscale, Bitmap		2,4,8 bit grayscale	16,24 bit color	Only with RGB	
PNG	RGB, Indexed, grayscale and bitmap	1	8	8,16,24,32 bit color	Only with Indexed color	24 bit rgb mode, and grayscale

JPG	RGB, grayscale and CMYK		8	8,16, 24, 32 bit rgb	Only with 32 bit RGB	

TIFF	CMYK, LAB, RGB, Indexed color, Grayscale	1	8	4,8,24,32 bit color	Only with Grayscale	

GIF	Indexed Color	1	1	4, 8 bit		

PCX	Index, RGB	1	8	4,8(index) ,24(rgb) bit color		

TGA	Bitmap, RGB		8	8,32 bit	RGB	

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.

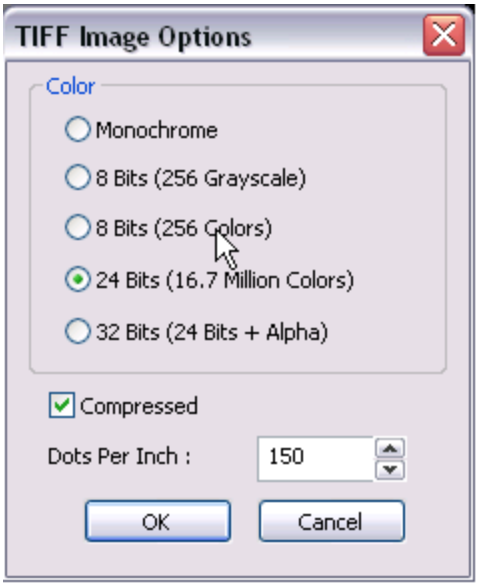
BMP format:

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:

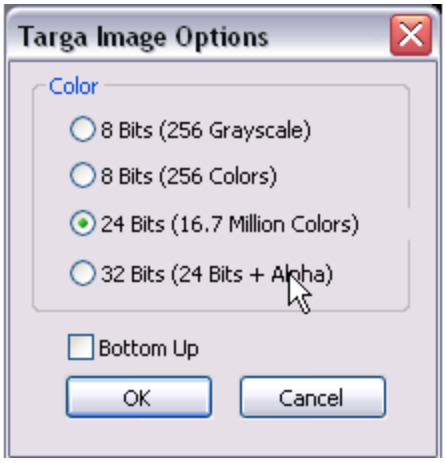
It is a vector file format. It also stores bitmap information on MAC computer it uses PICT graphics and on PC it uses TIFF graphics.

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.



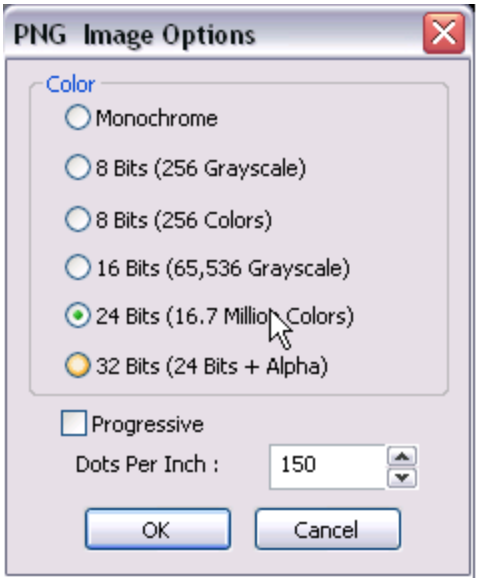
PNG (Portable Network Graphics):

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.

Macintosh PICT/ Windows PCT

The Macintosh PICT file format was developed for the Macintosh platform by Apple Computer Inc. It is a native file format of QuickDraw and can contain both vectors and bitmaps. The Macintosh PICT file format is widely used in Macintosh applications where graphics are used.

Conversion of Graphics Format

Most of the popular graphics-image editing program allow saving an image from one format to other format. For example photoshop provides saving of image from one format to other format. To save image in different format we use file->save as command, when save as dialog appears we must choose file format in which we want to save.

After specifying file name and choosing file format one more dialog box appears where we have to specify different options for chosen file format then we have to click on ok.

Feature of Photoshop

• We use Photoshop to color correct and sharpen scans. Photoshop gives us the ability to make great looking reproductions of not-so-great looking photographs. After the photo is adjusted (or created) it is then imported into PageMaker or QuarkXPress.

• Photoshop 7.0 delivers new and enhanced tools to help you accomplish your creative best. Experiment with sophisticated painting effects and patterns to turn your ideas into images that stand out.

• It provides new controls and security settings for superior images, precise output, and worry-free file sharing.

• It Work more efficiently. With the help of Photoshop 7.0 we can move files freely between Photoshop and Adobe Illustrator- layers, masks, transparency, and compound shapes are preserved. Maintain rollovers and animation information when you import Photoshop files into illustrator, and export illustrator HTML tables with CSS layers to

Photoshop.

•Photoshop 7.0 also allows to design and slice web page and then bring the sliced file directly into GoLive. Use the GoLive Smart Objects feature to generate variable designs automatically from Photoshop templates.

•We can also drag and drop layered Photoshop files into a LiveMotion composition and quickly converts them into animation-ready independent objects, groups, or sequences. Photoshop blending modes, layer masks, and effects are preserved, and the Photoshop artwork stays editable as you animate and code.

•Include transparency information in PDF files saved out of Photoshop, add password protection to secure your Photoshop PDF files, and use the Include Vector Data option to preserve text and vector graphics as resolution-independent objects.

•Photoshop 7.0 rounds out its comprehensive toolset with new capabilities that help you meet every creative challenge, master every production demand, and handle any image-editing task efficiently. With its comprehensive set of retouching, painting, drawing, and Web tools, Photoshop helps you complete any image-editing task efficiently. And with features like the History palette and editable layer effects, you can experiment freely without sacrificing efficiency.

Features of CorelDraw:

In CorelDraw You can choose a variety of new options when exporting a drawing to the SVG file format. You can choose a Unicode encoding method. You can also embed information in an SVG file, or store information in externally linked files. CorelDraw lets you optimize drawings for export to Microsoft Office or WordPerfect Office. CorelDraw Wallows users to exchange files effortlessly, regardless of the language or operating system in which the file was created, ensuring that text displays correctly. CorelDraw lets you can draw freehand strokes that are recognized and converted to basic shapes using the Smart drawing tool. CorelDraw automatically smoothes any unrecognized shapes or curves drawn with the Smart drawing tool. While you move or draw an object in CorelDraw, you can snap it to another object in a drawing.

You can snap an object to a number of snap points in the target object. When the pointer is close to a snap point, the snap point is highlighted, indicating it as the target that the pointer will snap to. CorelDraw has enhanced text alignment. You can align text objects to other objects using the first text baseline, last text baseline, or the bounding box. You can use the enhanced Eyedropper and Paint bucket tools to copy color, object properties, effects, and transformations from one object to another. You can delete portions of objects, called virtual line segments that are between intersections. CorelDraw has improved compatibility with many industry-standard file formats, such as Hewlett Packard Plotter (PLT), AutoCAD Drawing Interchange Format (DXF), and AutoCAD.

Drawing Database (DWG), Computer Graph Metafilee (CGM), Microsoft Word

Document and many more.

Symbols are now easier to work with in CorelDraw. The Library is now called the symbol manager, allowing you to easily work with external symbols and symbol libraries. To distinguishing between a symbol and an object the selection handles around a symbol are now blue. As well, the controls for editing are easier to access. Cursor improvements to the 3-point drawing tools let you easily specify width and height as you draw rectangles, and curves.