

Branch-BCA
Semester-6th

Unit-1

Multimedia

Subject-Multimedia Application





Content

Introduction to Multimedia

Components

Uses of Multimedia

Multimedia Applications

Virtual Reality

Fonts & Faces

Text in Multimedia

Font Editing & Design Tools

Hypermedia & Hypertext



Introduction to Multimedia

- Multimedia is an interactive media and provides multiple ways to represent information to the user in a powerful manner.
- It provides an interaction between users and digital information. It is a medium of communication.
- Some of the sectors where multimedia is used extensively are education, training, reference material, business presentations, advertising and documentaries.
- Multimedia is a representation of information in an attractive and interactive manner with the use of a combination of text, audio, video, graphics and animation.
- Multimedia is a computerized method of presenting information combining textual data, audio, visuals (video), graphics and animations.



Components of Multimedia

- Following are the common components of multimedia:

1. Text- All multimedia productions contain some amount of text. The text can have various types of fonts and sizes to suit the professional presentation of the multimedia software.

2. Graphics- Graphics make the multimedia application attractive.

- In many cases people do not like reading large amount of textual matter on the screen.
- Therefore, graphics are used more often than text to explain a concept, present background information etc.
- There are two types of Graphics:

Bitmap images- Bitmap images are real images that can be captured from devices such as digital cameras or scanners.



- Generally bitmap images are not editable. Bitmap images require a large amount of memory.

Vector Graphics- Vector graphics are drawn on the computer and only require a small amount of memory. These graphics are editable.

3. Audio- A multimedia application may require the use of speech, music and sound effects.

- These are called audio or sound element of multimedia.
- Speech is also a perfect way for teaching.
- Audio are of analog and digital types.
- Analog audio or sound refers to the original sound signal.
- Computer stores the sound in digital form. Therefore, the sound used in multimedia application is digital audio.



4. Video- The term video refers to the moving picture, accompanied by sound such as a picture in television.

- Video element of multimedia application gives a lot of information in small duration of time.
- Digital video is useful in multimedia application for showing real life objects.
- Video have highest performance demand on the computer memory and on the bandwidth if placed on the internet.
- Digital video files can be stored like any other files in the computer and the quality of the video can still be maintained.
- The digital video files can be transferred within a computer network. The digital video clips can be edited easily.



5. Animation- Animation is a process of making a static image look like it is moving.

- An animation is just a continuous series of still images that are displayed in a sequence.
- The animation can be used effectively for attracting attention.
- Animation also makes a presentation light and attractive. Animation is very popular in multimedia application.



Applications of Multimedia

Following are the common areas of applications of multimedia:-

Multimedia in Business - Multimedia can be used in many applications in a business.

- The multimedia technology along with communication technology has opened the door for information of global work groups.
- Today the team members may be working anywhere and can work for various companies. Thus the work place will become global.



- The multimedia network should support the following facilities:
 - Voice Mail
 - Electronic Mail
 - Multimedia based FAX
 - Office Needs
 - Employee Training
 - Sales and Other types of Group Presentation
 - Records Management

Multimedia in Marketing and Advertising- By using multimedia marketing of new products can be greatly enhanced.

- Multimedia boost communication on an affordable cost opened the way for the marketing and advertising personnel.



- Presentation that have flying banners, video transitions, animations, and sound effects are some of the elements used in composing a multimedia based advertisement.

Multimedia in Entertainment- By using multimedia marketing of new products can be greatly enhanced.

- Multimedia boost communication on an affordable cost opened the way for the marketing and advertising personnel.
- Presentation that have flying banners, video transitions, animations, and sound effects are some of the elements.
- These are used in composing a multimedia based advertisement to appeal to the consumer in a way never used before and promote the sale of the products.



Multimedia in Education- Many computer games with focus on education are now available.

- Consider an example of an educational game which plays various rhymes for kids.
- The child can paint the pictures, increase reduce size of various objects etc apart from just playing the rhymes.
- Several other multimedia packages are available in the market which provide a lot of detailed information and playing capabilities to kids.

Multimedia in Bank- Bank is another public place where multimedia is finding more and more application in recent times.

- People go to bank to open saving/current accounts, deposit funds, withdraw money, know various financial schemes of the bank, obtain loans etc.



- Every bank has a lot of information which it wants to impart to its customers.
- For this purpose, it can use multimedia in many ways. Bank also displays information about its various schemes on a PC monitor placed in the rest area for customers.
- Multimedia is thus helping banks give service to their customers and also in educating them about banks attractive finance schemes.

Multimedia in Hospital- Multimedia best use in hospitals is for real time monitoring of conditions of patients in critical illness or accident.

- The conditions are displayed continuously on a computer screen and can alert the doctor/nurse on duty if any changes are observed on the screen.



Communication Technology and Multimedia Services- The advancement of high computing abilities, communication ways and relevant standards has started the beginning of an era where you will be provided with multimedia facilities at home.

- These services may include:
 - Basic Television Services
 - Interactive entertainment
 - Digital Audio
 - Video on demand
 - Home shopping
 - Financial Transactions
 - Interactive multiplayer or single player games
 - Digital multimedia libraries
 - E-Newspapers, e-magazines



Uses of Multimedia

- Print advertising
- Radio (audio) advertising
- Television (video) advertising
- Digital advertising
- Display Advertising
- Video
- Social
- Mobile advertising
- Business
- Mass media communication.
- Entertainment
- Science and technology



Virtual Reality

Virtual reality (VR) is special kind of graphical user interface which presents a computer-generated immersive, three-dimensional, interactive environment that is accessed and manipulated using, for instance, stereo headphones, head-mounted stereo television goggles, and data-gloves.

Different Types of Virtual Reality:-

- 1- Non-immersive Virtual Reality
- 2- Fully Immersive Virtual Reality
- 3- Semi-Immersive Virtual Reality
- 4- Augmented Reality
- 5- Collaborative Virtual Reality.



Advantages of Virtual Reality:-

1. Little/no risk.
2. Safe, controlled area.
3. Realistic scenarios.
4. Can be done remotely saving time and money.
5. Improves retention and recall.
6. Simplifies complex problems/situations.
7. Suitable for different learning styles.
8. Innovative and enjoyable.

Disadvantages of Virtual Reality:-

1. Lack Of Flexibility.
2. Functionality Issues.
3. Addiction to the Virtual World.
4. Quite Expensive.



Text

- Text is an important component used in many multimedia applications.
- They are characters that are used to create words, sentences and paragraphs. Text provide one source of information.
- In information technology, text is a human-readable sequence of characters and the words they form that can be encoded into computer-readable formats such as ASCII .
- Text media such as those in the newspaper, text books are very important sources of knowledge/information readily available especially those on-line sources.



Fonts and Faces

Fonts

- Font is a collection of characters of a single size and style belongs to a single type face .
- Typically font's styles are bold and italic, computer may add another styles like underline and outline also.
- Type size is usually measured in points.
- Most typefaces can be classified into one of four basic groups: with serifs, without serifs, scripts and decorative styles.



Types of Fonts :-

1. Serif- Serif fonts are often considered the most traditional kind of font.
2. Sans Serif- Sans-serif fonts have been growing in popularity in recent years.
3. Slab Serif- Slab serif fonts are a branch of the overall serif font.
4. Script.
5. Decorative.



Uses of Fonts:-

1. Use fonts to create a hierarchy. Typographic hierarchy refers to the order that the text is read.
2. Use contrasting fonts. Choosing fonts with high contrast is a great rule-of-thumb for striking titles and subtitles.
3. Create readability.
4. Be creative.
5. Use fonts that suit for style.



Faces

- Face recognition is also useful in human computer interaction, virtual reality, database recovery, multimedia, computer entertainment, information security.
- E.g. operating system, medical records, online banking., Biometric e.g. Personal Identification - Passports, driver licenses , Automated identity verification.
- Face recognition is often described as a process that first involves four steps; they are: face detection, face alignment, feature extraction, and finally face recognition.



Using Text in Multimedia

- Text is words and symbols in any form, spoken or written, are the most common system of communication.
- Text is used in most Multimedia applications.
- With multimedia technology, text can be combined.
- Multimedia assignments or projects allow students to present their newly attained knowledge through images, audio and video instead of just textually.
- Find or create online games, tutorials or quizzes to facilitate an interactive learning environment.



Font Editing and Design Tools

- A font editor is a class of application software specifically designed to create or modify font files.
- Font editors differ greatly depending on if they are designed to edit bitmap fonts or outline fonts.
- Most modern font editors deal with the outline fonts.
- The ability to change text by adding, deleting and rearranging letters, words, sentences and paragraphs.
- Text editing is the main operation users perform in word processors, which typically also handle graphics and other multimedia files.



Five of the most popular font editors

1. Fontlab Studio
2. FontCreator
3. Fontographer
4. Glyphs
5. Robofont

There are seven types of font:-

1. Old Style.
2. Transitional.
3. Modern.
4. Slab Serif.
5. Sans Serif.
6. Decorative.
7. Script-Cursive.



Hypermedia and Hypertext

Hypermedia

- Hypermedia, an extension of the term hypertext, is a nonlinear medium of information that includes graphics, audio, video, plain text and hyperlinks.
- This designation contrasts with the broader term multimedia, which may include non-interactive linear presentations as well as hypermedia.
- Hypermedia allows links to be embedded in multimedia elements like images and videos.
- Hypermedia controls are the combinations of protocol methods and link relations.



Hypertext

- Hypertext means machine readable text and Markup means to structure it in a specific format.
- HTML is called hypertext markup language because it is a language that allows users to organize, improve the appearance of, and link text with data on the internet.
- Hypertext, a hyperlink involving text, is a feature of some computer programs that allow the user of electronic media to select a word from text and receive.
- Additional information pertaining to that word, such as a definition or related references within the text.

Unit-2

Image





Content

Still Images-Bitmaps

Vector Drawing

3D Drawing & Rendering

Natural Lights & Colours

Digital Audio

MIDI Audio

MIDI vs Digital Audio

Audio File Formats



Still Images-bitmaps

- A bitmap is a data matrix describing the individual dots of an image that are the smallest elements (pixels) of resolution on a computer screen or printer.
- A still image is data in which a grid or raster of picture elements (pixels) has been mapped to represent a visual subject, e.g., the page of a book or a photograph.
- Still images are the important element of a multimedia project or a web site – To make a multimedia presentation look elegant and complete.
- If there are just two intensity values, for example, black, and white, they are represented by the numbers 0 and 1; such images are called binary-valued images.



The 5 Types of Digital Image Files:

1. TIFF
2. JPEG
3. GIF
4. PNG
5. Raw Image Files.

Purpose of a still image:-

1. This is a frozen **picture** which communicates meaning.
2. It's sometimes called a freeze **frame** or tableau.
3. It can provide insight into character relationships with a clear focus upon use of space, levels, body language and facial expression.
4. Still images can be used in a variety of ways.



Vector Drawing

- Graphic designers use vector graphics to create graphics that need to be scaled.
- The nature of vector graphics, where each line, curve, shape, and color is mathematically defined, lends itself to creating image.

Advantages of vector graphics:

- They have infinite resolution.
- They are scalable.
- They are lightweight (small file size)
- They are intuitively created.
- They are easily manipulated.
- They are easily reusable.
- They are multipurpose.
- They can produce very realistic results.



3D Drawing and Rendering

- 3D rendering both technical and artistic employs the use of 3D software to help create images to help better explain or advertise concepts and designs.
- The use of technical drawings or CAD designs is common in the creation of 3D models.
- After creating the 3D model, the 3D artist adds lights, textures and cameras.
- 3D rendering is the process of turning information from a 3D model into a 2D image.
- 3D rendering can be used to create a variety of images, from the intentionally non-realistic.



- Rendering itself is the process of formulating from a realistic or non-realistic photo to a computer program for better representation and visualization.
- This technique uses computer programs to create an object in space, design elements, and add shading, lighting, and texture elements.
- Rendering is the process involved in the generation of a two-dimensional or three-dimensional image from a model by means of application programs.
- Rendering is mostly used in architectural designs, video games, and animated movies, simulators, TV special effects and design visualization.



Natural Light and Colours

- Natural light photography uses the sun as a light source.
- This stands in contrast to middle-of-the-day photography, where the direct sun can provide overly harsh light on an object or a subject's face.
- Natural light is light that is generated naturally, the common source of which is the Sun.
- This is as opposed to artificial light, which is typically produced by electrical appliances such as lamps.



Benefits of Natural Light:-

1. Boosts vitamin D. When exposed to sunlight, the skin absorbs vitamin D.
2. Wards off seasonal depression.
3. Improves sleep.
4. Reduces health risks of fluorescent lighting.

3 Basic Types of Lighting:-

Ambient lighting.

Task lighting.

Accent lighting.



Sound : Digital Audio

- Digital audio is a representation of sound recorded in, or converted into, digital form.
- In digital audio, the sound wave of the audio signal is typically encoded as numerical samples in a continuous sequence.
- Digital audio is a technology that is used to record, store, manipulate, generate and reproduce sound.
- Using audio signals that have been encoded in digital form.
- It also refers to the sequence of discrete samples that are taken from an analog audio waveform.



MIDI Audio

- MIDI is an acronym that stands for Musical Instrument Digital Interface.
- It's a way to connect devices that make and control sound such as synthesizers, samplers, and computers so that they can communicate with each other, using MIDI messages.
- MIDI is a technical standard that describes a communications protocol.
- Digital interface, and electrical connectors that connect a wide variety of electronic musical instruments, computers, and related audio devices for playing, editing and recording music.
- MIDI itself makes no sound, the actual note number, note length and note velocity is sent to the specified MIDI channel.



MIDI Vs Digital Audio

- MIDI files are much more compact than digital audio files.
- MIDI files embedded in web pages load and play more quickly than their digital equivalent.
- MIDI data is completely editable. A particular instrument can be removed from the song and/or a particular instrument can be changed by another just by selecting it.
- The quality of digital recordings is improving significantly, to current advances in analog-to-digital conversion methods.
- A digital signal isn't continuous, its use of a higher sampling rate can distinction between audio and digital sound.



Audio File Formats

- A file format is the structure of how information is stored (encoded) in a computer file.
- File formats are designed to store specific types of information, such as JPEG and TIFF for image or raster data.
- Audio format defines the quality and loss of audio data. Based on application different type of audio format are used.
- Audio formats are broadly divided into three parts:
 1. Uncompressed Format
 2. Lossy Compressed format
 3. Lossless Compressed Format

Unit-3

Video



Content



How video works

Analog Video

Digital Video

Video File Formats

Video Shooting and Editing

Principle of Animation

Animation File Formats



How Video Works

- The term video refers to the moving picture, accompanied by sound such as a picture in television.
- Video element of multimedia application gives a lot of information in small duration of time.
- Digital video is useful in multimedia application for showing real life objects.
- Integrating video clips in multimedia presentations may increase students' perception of important information and motivation for learning.
- Digital video clips use frame rates from 12-30 frames per second, with 24 frames per second commonly used.
- The audio is stored as a separate stream, but kept in close synchronization with the video elements.
- Like analog television, digital video uses a “divide and conquer” strategy.



Analog Video

- Analog video is a video signal represented by one or more analog signals.
- Analog color video signals include luminance, brightness (Y) and chrominance (C).
- When combined into one channel, as is the case, among others with NTSC, PAL and SECAM it is called composite video.
- Broadcasters of analog television encode their signal using different systems.
- A practical television system needs to take luminance, chrominance (in a color system), synchronization (horizontal and vertical), and audio signals, and broadcast them over a radio transmission.



Digital Video

- Digital video is used for Internet distribution of media, including streaming video and peer-to-peer movie distribution.
- Many types of video compression exist for serving digital video over the internet and on optical disks.
- A video file format is a type of file format for storing digital video data on a computer system.
- A standardized video file type such as .webm is a profile specified by a restriction on which container format and which video and audio compression formats are allowed.



Video File Format

- Video files are collections of images, audio and other data.
- The attributes of the video signal include the pixel dimensions, frame rate, audio channels, and more.
- There are many different ways to encode and save video data.
- This page outlines the key characteristics of the video signal, and the file formats used to capture, work with, and deliver that data.
- A file format is the structure in which information is stored (encoded) in a computer file.



Every video file has some attributes that describe what makes up the video signal.

These characteristics include:

1. Frame size: This is the pixel dimension of the frame
2. The Aspect Ratio: This is the ratio of width to height
3. Frame rate: This is the speed at which the frames are captured and intended for playback.
4. Bit rate: The bit rate or data rate is the amount of data used to describe the audio or video portion of the file.
5. The audio sample rate: This is how often the audio is sampled when converted from an analog source to a digital file.



Video Shooting and Editing

Video Editing

- Video Editing is the process of manipulating and rearranging video shots to create a new work.
- Rearranging, adding and/or removing sections of video clips and/or audio clips.
- Applying colour correction, filters and other enhancements. Creating transitions between clips.
- A video editor is a technically inclined individual that makes creative video editing decisions.
- A video editor can also refer to a computer device controller that controls video machines to mechanically put pieces of a film together using a 9-Pin Protocol.



Video Shooting

There are some rules for video shooting:-

1. Always shoot for at least 10 seconds you for shoot longer of course but no shorter as this will make editing much easier and simpler.
2. ALWAYS USE A TRIPOD.
3. Keep your camera movements to a minimum unless you use professional video tripods.
4. Just like photography have to vary shot length. So always in terms of wide, medium and tight shots.



Principles of Animation

- Animation is defined as a series of images rapidly changing to create an illusion of movement.
- We replace the previous image with a new image which is a little bit shifted.

Different Types of Animation:

- Traditional Animation
- 2D Animation (Vector-based)
- 3D Animation
- Motion Graphics
- Stop Motion



Principles of Animation:-

1. **Squash and Stretch:** The squash and stretch principle provides the illusion of weight and volume to a personality as they move.
2. **Anticipation** – Anticipation is used to realize the audience to know that a major action is about to take place.
3. **Staging** – According to this principle every pose or action of the character that he makes should convey a clear intention.
4. **Straight Ahead and Pose to Pose** – According to this principle which refers to the techniques by which animation is crafted.
5. **Follow Through and Overlapping Action** – According to this principle when a character is in action and stops, nothing stops all at once.
6. **Slow-In and Slow-Out** – According to this principle it add realism to the movement of characters.
7. **Arc** – According to this principle all actions in life have a slightly circular motion.



8. Secondary Action – According to this principle an additional action that reinforces and adds more dimension to the main action.

9. Timing – According to this principle the timing helps create the illusion that an action is abiding by the laws of physics.

10. Exaggeration – According to this principle which is all about overstating certain movements in a way that helps evoke a point, yet doesn't ruin the believability of the scene.

11. Solid Drawings – According to this principle it encourages animators to be mindful of the fact that while forms may be presented in 2D, they should strive to look 3D.

12. Appeal – According to this principle not all character should be appealing. But as per this principle posits that animators should strive to create images that will be interesting and compelling to audiences.



Animation File Formats

Animation File Formats are:-

- File Formats for multimedia
- RTF
- Plain text
- TIFF (Tagged Image File Format)
- BMP (Bitmap).
- DIB (Device Independent Bitmap)
- GIF (Graphics Interchange Format)
- JPEG (Joint Photographic Experts Group)

5 Forms of Animation

- Traditional Animation.
- 2D Animation.
- 3D Animation.
- Motion Graphics.
- Stop Motion.

Unit-4

Internet and Multimedia



Content



WWW and HTML

Web Servers

Web Browsers

Web page makers

Site builders



WWW and HTML

WWW

- The World Wide Web commonly referred to as WWW, W3, or the Web—is an interconnected system of public WebPages accessible through the Internet.
- The world wide web is a collection of WebPages found on the network of computers.
- Web browser uses the internet to access the web.
- WWW stands for World Wide Web. World Wide Web is : all the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP).
- The World Wide Web is the universe of network-accessible information, of human knowledge.



Benefits of WWW

- It is accessible from anywhere around the globe with the availability of the internet.
- We can get access to information or make information accessible to the world.
- We can connect to people from anywhere by sitting in home.

Important features of WWW are:-

Hypertext Information System

Cross-Platform

Distributed

Open Standards and Open Source. TCP/IP, HTTP, HTML, CSS

Web Browser: provides a single interface to many services

Dynamic, Interactive, Evolving



HTML

- HTML Stands for Hypertext Markup Language.
- HTML is the language for describing the structure of Web pages.
- HTML gives authors the means to: Publish online documents with headings, text, tables, lists, photos, etc.
- Retrieve online information via hypertext links, at the click of a button.
- HTML is the standard markup language for Web pages.
- HTML contains no programming logic. It doesn't have common conditional statements such as If/Else. This is because HTML is not a programming language.



Web Servers

- A web server is software and hardware that uses HTTP (Hypertext Transfer Protocol) and other protocols.
- It respond to client requests made over the World Wide Web.
- The main job of a web server is to display website content through storing, processing and delivering WebPages to users.
- A web server is a computer that runs websites.
- It's a computer program that distributes web pages as they are requisitioned.
- This intercommunication is done using Hypertext Transfer Protocol (HTTP).



Functions of web server:-

1. Stores and secures website data
2. Provides web database access
3. Serve the end user requests
4. Bandwidth controlling to regulate network traffic
5. Virtual hosting
6. Server side web scripting

Types of Web Server:-

Apache HTTP Server

Lighttpd

Sun Java System Web Server

Jigsaw Server



Web Browsers

- A web browser is application software for accessing the World Wide Web.
- When a user requests a web page from a particular website, the web browser retrieves.

Web - Browser Types :-

- Internet Explorer.
- Google Chrome.
- Mozilla Firefox.
- Safari.
- Opera.
- Konqueror.
- Lynx.



- The most popular web browsers are Google Chrome, Microsoft Edge, Mozilla Firefox, and Apple's Safari.
- If we have a Windows computer, Microsoft Edge are already installed on computer.
- Mozilla Firefox- The best browser for power users and privacy protection.
- Microsoft Edge- A genuinely great browser from the former browser.
- Google Chrome- It's the world's favorite browser, but it can be a memory-muncher.
- Opera- A classy browser that's particularly good for collecting content.



Web Page Makers

- Web Page Maker is an easy-to-use web page editor.
- That allows to create and upload web pages in minutes without knowing HTML.
- Simply drag and drop objects onto the page and position them freely in the layout.
- It comes with some pre-designed templates that help to get started.
- It also includes ready-to-use navigation bars that can be inserted into the page.
- Additional features include built-in color picker, Java script library, image library and built-in FTP client.



Site Builders

- Website builders are tools that allow the construction of websites without manual code editing.
- In other words, a website builder is a program, or tool, that help to build a website.
- A website builder works basically like this: From your website builder's library, pick a template that best fits for needs.
-
- Edit the template's built-in elements with a click and add your own content personalize your site.



Best website builder are :-

- Best prepackaged design. Squarespace
- Easiest to use. Weebly
- Best for building a customized experience. Duda
- Best For basic, no-frills websites. GoDaddy
- Best for writers and bloggers. WordPress
- Best for basic e-commerce. Shopify
- Best for bigger stores. BigCommerce

Unit-5

Marketing Media





Content

Stages of a multimedia project

Requirements to make good multimedia

Multimedia Hardware

Connections

Memory and Storage Devices

Multimedia Software

Authoring Tools



Stages of Multimedia Project

- The basic stages of a multimedia project are planning and costing, design and production, testing and delivery.
- Knowledge of hardware and software, as well as creativity and organizational skills.
- Multimedia Project is the integration of media objects such as text, graphics, video, animation, and sound to represent and convey information.
- The three main stages of production are: Pre-production: Planning, scripting & storyboarding, etc.



Requirements for Good Multimedia

- The project team should include skills in a number of areas.
- These may include art direction, sound and or video production, scriptwriting, program design, curatorial or academic knowledge and technical knowledge .
- There is no single configuration for a multimedia project team.
- Requirements of Multimedia Applications:-
 1. Multi-Point Communication.
 2. Quality-of-Service Control.
 3. Flow Control.
- Text, image, audio, video, and animation are the five multimedia elements.



Key skills for multimedia projects are :-

1. Confidence.
2. A good eye for design, layout and detail.
3. Imagination and creativity.
4. Patience.
5. Time management skills.
6. Organizational skills.
7. Analytical skills.
8. Problem-solving skills.



Multimedia Hardware

- Following are the various categories in which we can define the various types of hardware required for multimedia applications:-

Processor - The main work of any multimedia computer is its processor.

- CPU is considered as the brain of the computer.
- CPU performs all types of data processing operations.
- It stores data, intermediate result and instructions (program).
- It controls the operations of all parts of computer.

Memory and Storage Devices - Need memory for storing various files used during production, original audio and video clips, edited pieces and final mined pieces.



Input Devices - Following are the various types of input devices which are used in multimedia systems.

1. Keyboard- Most common and very popular input device is keyboard. The keyboard helps in inputting the data to the computer.

2.Mouse - Mouse is most popular Pointing device. It is a very famous cursor-control device. It is a small palm size box with a round ball at its base which senses the movement of mouse and sends corresponding signals to CPU on pressing the buttons.

3.Joystick - Joystick is also a pointing device, which is used to move cursor position on a monitor screen.

4.Light Pen - Light pen is a pointing device, which is similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen.



Output Devices - Following are few of the important output devices, which are used in Computer Systems:

1. Monitors - Monitor commonly called as Visual Display Unit (VDU) is the main output device of a computer. It forms images from tiny dots, called pixels, that are arranged in a rectangular form.

2. Printers - Printer is the most important output device, which is used to print information on paper.

3. Screen Image Projector - Screen image projector or simply projector is an output device used to project information from a computer on a large screen.

4. Speakers and Sound Card - Computers need both a sound card and speakers to hear audio, such as music, speech and sound effects.



Hardware Peripherals

Multimedia Software and Tools:-

- Multimedia software tells the hardware what works to be done.
- Multimedia software tells the hardware to display the color blue, play the sound of cymbals crashing etc.
- To produce these media elements movies, sound, text, animation, graphics etc.
- There are various software available in the market such as Paint Brush, Photo Finish, Animator, Photo Shop, 3D Studio, Corel Draw, Sound Blaster, IMAGINET, Apple Hyper Card, Photo Magic, Picture Publisher.



Multimedia Software Categories

Following are the various categories of Multimedia software

Device Driver Software- These software are used to install and configure the multimedia peripherals.

Media Players- Media players are applications that can play one or more kind of multimedia file format.

Media Conversion Tools- These tools are used for encoding / decoding multimedia contexts and for converting one file format to another.

Multimedia Editing Tools- These tools are used for creating and editing digital multimedia data.

Multimedia Authoring Tools- These tools are used for combining different kinds of media formats and deliver them as multimedia contents.



Multimedia Application:

Text Editing Tools- These tools are used to create letters, resumes, invoices, purchase orders, user manual for a project and other documents.

Painting and Drawing Tools- These tools generally come with a graphical user interface with pull down menus for quick selection.

Image Editing Tools- Image editing tools are used to edit or reshape the existing images and pictures.

Sound Editing Tools- These tools are used to integrate sound into multimedia project very easily.

Video Editing Tools- These tools are used to edit, cut, copy, and paste your video and audio files.



Connections

- A connection is a term that describes the link between a plug or connector into a port or jack.
- For example, monitor, mouse, and keyboard all must connect to the computer before they work.
- Multimedia connection system can easily integrate computer, video, audio, control or network connections in socket systems, desktop.
- Different types of connections are:-
 - Wi-Fi Hotspots
 - Dial-Up
 - Broadband
 - DSL
 - Cable
 - Satellite
 - ISDN



Memory and Storage Devices

- Storage devices are any type of hardware that is capable of storing and retrieving data.
- Most often these devices come in the form of hard drives or optical discs.
- There are two main categories of storage devices. Primary storage, Secondary Storage.
- RAM, is used by computer systems to temporarily store and retrieve data.
- Hard drives stores data permanently.

Primary memory

- It is also called as the main memory of the computer.
- It stores the instructions, operating system and data which required to run the computer.



- There are two types of primary memories.
RAM (Random Access Memory)
ROM (Read Only Memory)

Some Storage Devices are:-

External HDDs and SSDs

Flash memory Devices

Optical Storage Devices

Floppy Disks

Primary Storage: Random Access Memory (RAM)

Secondary Storage: Hard Disk Drives (HDD) & Solid-State Drives (SSD)

Hard Disk Drives (HDD)

Solid-State Drives (SSD)



Some Memory Devices are:-

1. Static RAM (SRAM)
2. Dynamic RAM (DRAM)
3. MROM (Masked ROM)
4. PROM (Programmable Read Only Memory)
5. EPROM (Erasable and Programmable Read Only Memory)
6. EEPROM (Electrically Erasable and Programmable Read Only Memory)

Thank You