

UNIT - 5

Multimedia

* Multimedia :-

Multimedia is the medium that use multiple forms of information content and information processing (eg. text, audio, graphics, animation, video and inter activity), to inform and entertainment to the user.

Multimedia also refer to the use of electronics media to store and experience multimedia content.

Multimedia is used for communication. Today multimedia ~~needs~~ resides in internet also. Our browser supports hyperlinks, playing external videos etc.

Multimedia is the field concerned with computer control integration of text, graphics, drawings, video, animation, audio and any other media where every type of information can

be represented, stored, transmitted and processed digitally.

* Characteristics of Multimedia systems
Multimedia have basically 4 characteristics -

- 1- Multimedia system must be computer controlled.
- 2- Multimedia systems are integrated.
- 3- The information represented by digitalize.
- 4- The interface of the final presentation of media must be interactive.

* Multimedia Technology :- (Terminology)

1. Media
2. Temporal
3. Non-temporal media
4. Multimedia presentation
5. Multimedia content
6. Multimedia Network service
7. Multimedia software
8. Multimedia devices
9. Multimedia applications

2- Temporal media — The behaviour of temporal media during transformation is a function of time.

* Multimedia Architecture :- We need to organise clients, servers and storage server that communicate through a network, multimedia system are put under 2 categories —

- 1- Single-user system
- 2- Multi-user system

1- Single-user system — Three types of multimedia system are used CD-ROM or hard disk to hold multimedia objects and scripting meta-data to orchestrate the play-out. The means of orchestrate is synchronisation and scheduling.

2- Multi-user system — Distributed multimedia system communicate through a network. They use many shared resources so resource management is quite complex. Some example of this system are —

- (i) Video Over LAN
- (ii) Internet through cable

(iii) Video conferencing

* CD-ROM :-

A compact disk is an optical disk used to store digital data developed for storing digital audio. The CD available in the market since 1982, remains the standard playback medium for commercial audio recording to the present. An audio CD consist one or more stereo track using 16 bit coding at the sample rate 44.1 KHz. Standard CD have a diameter of 120 mm and can hold approximately 80 minute audio.

* Physical details of CD-ROM - A compact disk is made from a 1.2 mm thick disk of almost pure polycarbonate plastic and weight approx 16 gm. A thin layer of aluminium (or rarely gold use for its long-life) is applied to the surface of it for making reflective and protected. CD data is stored as a series of tiny indentation (pits) encoded in a tightly packed spiral track model into the top of the polycarbonate layer. Each pits is approximately 100 nm (nano-meter) deep

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by 500 nm wide and varies from 850 nm to 3.5 μm in length.

* CD-ROM and Multimedia Highway :-

As we know multimedia require large amount of digital memory when stored in an end user's library or big amount of bandwidth when distributed over wires, glass fibre or air waves on a network.

For transfer of large content we need large bandwidth so that the content can be deliver to end user speedly.

This can be possible by various storage medium like CD-ROM and DVD etc.

In the very long term CD-ROM and DVD disc are used for store multimedia information as the data highway describe the track of flow the multimedia information. Today's tele-communication networks are global and when information provider and content owner determine the worth of their product and how to charge money of these information.

Multimedia information elements will ultimately link-up online as distributed resources on a data highway where you will pay to acquire and use

multimedia based information.

All companies will own the routes for carrying data other companies will own hardware and software interface at the end of the line like office and home. They will provide supply on demand and billing services.

* Disc vs disk :-

Disc — A disc refers to optical media such as an audio CD, CD-ROM, DVD-ROM or DVD-video disc. All discs are removable, means when you unmount the disc, it physically comes out of your computer.

Some discs are read-only (ROM) and some can be erased and rewritten over many times.

Disk — A disk refers to magnetic media such as a floppy disk, the disk on your computer's hardware, an external harddrive. Disks are always rewritable. Disks are usually sealed inside a metal or plastic casing.

Assignment

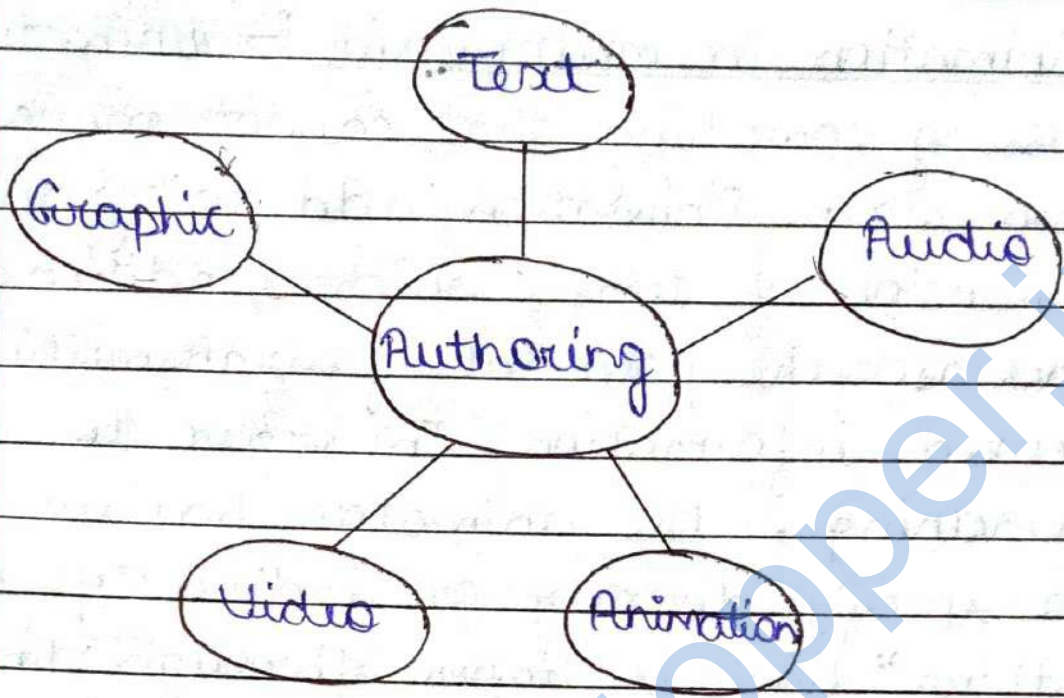
Authoring System In Multimedia :-

Authoring systems can be defined as software that allows its user to create multimedia applications manipulating multimedia objects. Generally authoring system provide lots of graphics, interaction and other tools educational software need.

How is multimedia authoring software used ?

Multimedia authoring software allows teachers and students to integrate many forms of multimedia. For example, audio, animation, text, hypertext, video, graphics and images into software program.

These multimedia authoring software tools are used to create business presentations, games, CDs and DVDs.



Types of Multimedia Authoring Systems:

- 1- Dedicated authoring system
eg. - Microsoft Power Point
- 2- Timeline based authoring system
eg. - Adobe Flash
- 3- Programmable authoring system
eg. - Javascript

* Animation in multimedia :- Animation is moving something that cannot move on its own state. Animation add to graphics the dimension of time, which traditionally increase the potential of transmitting the desired information. In order to animate something, the animator has to be able to specify directly or indirectly how the "thing" has to move through time and space.

* Traditional method of animation -
Traditionally, most of animation work on the method of frame concept. Animation requires 24 frames in each animation content which work required to create even the shortest of movies can be combination of images. Some of the traditionally used methods are described below -

1. Keyframes
2. Cell animation
3. Rotascoping
4. Computer animation
5. Keyframing
6. Simulation
7. Motion capture

- **Motion Capture** - Motion capture is the process of recording the movement of object or people. It is used in military, entertainment, sports and medical sector for validation of computer vision and robotics.

- **Keyframe** - In media production, a keyframe is a location on a timeline which marks the beginning or end of a transition. It holds special information that defines where a transition should start or stop. The intermediate frames are interpolated over time between these definitions to create the illusion of motion. In computer animation, like 3-D animation or non-linear video editing, this interpolation is performed mathematically by the CPU.

- **Simulation** - Simulation is the process of creating an abstract representation (a model) to represent important aspects of real world. Just as flight simulators have long been used to help expose pilots and designers to both routine and unexpected circumstances, simulation models can help you explore the behaviour of your

system under specified situations.

* **2-D Animation :-** 2-D animation creates movement in a two-dimensional artistic space. In 2D animation, a character is drawn by hand, on computer, or a combination of both. Even with today's technology, most traditional 2D animation starts with drawings. The artist creates a whole series of images, one after another, making slight changes in the character's position. When these images are run together quickly, it creates the effect of movement.

3-D Animation :- 3-D animation comprises of objects in height, width and depth. In other words, characters are going to be more realistic contrast to 2D characters. 3D animation is the form of animation that is completely done with a computer. The 3D animation allow you to do things that are not possible in 2D animation.

* **Difference between 2D and 3D animation :-**

2-D animation

3-D animation

- 1- 2D animation implies that the object is two dimensional.
 - 2- 2D animation comprises of characters or objects only in height and width.
 - 3- 2D animation objects are created by traditional drawing method. Each move of the character has to be created frame by frame.
 - 4- 2D animation is all about frames.
 - 5- It is not suitable for conceptual drawing as you can only represent in two-dimensions.
 - 6- 2D animation is widely implemented in films, advertisements, cartoon shows, websites, e-learning.
- 3-D animation implies that the object is three dimensional.
 - 3-D animation comprises of objects in height, width and depth.
 - In 3D animation, everything is going to be done in available computer software. The development consist of several phases steps such as modelling, texturing, lighting, rendering etc.
 - 3D animation is all about movement.
 - 3D animation is impeccable for conceptual designing as it results in all the 3 dimensions.
 - 3D animation is widely used in gaming, movies, biotechnology, medical.