

UNIT-8Multimedia Application④ Media Preparation:

Media preparation is performed by multimedia I/O hardware and its supporting software. Therefore hardware and software are the basic components for introducing media into the digital world of computer.

⑤ Means:

this point can be escaped or remember only 5 points

1) Audio Support:

Some audio support with multiple-channel digital sound tracks is already available. In the area of virtual reality entertainment, sound interaction occurs via a helmet. The same degree of attention was paid to the design and development of stereo sound.

2) Video Support:

Video boards and digitizers aim toward a high-resolution picture presentation. The ultimate goal is high-resolution and a film rate of 60 frames per second or faster which provides an extremely clear picture. An important capability of the video hardware is to provide a constant frame rate with a minimum of jitter.

3) Scanner Devices:

Image scanners and photo CD devices support input and output of images and photographs. Although data tablets can be used to manually digitize existing line drawings, this is a slow process. Image scanners provide an efficient solution. For high-quality publication work, a photo scanner is used.

4) Recognition Devices:

Recognizers are built to recognize different media. An example is object-oriented character recognition engine AQUIRE. It is used in a pen-based environment.

5) Tracking Devices:

Trackers report information about position, orientation, acceleration, pressure etc. There are several technologies like electromagnetic trackers, Ultrasonic trackers etc. which have been deployed.

6) Motion Based Devices: Motion-bases are typically hydraulic systems that manipulate the viewer along several axes of motion. The movement of the platform, vehicle or chair is programmed to mimic the real-world motion that would correspond to the visual image. A motion-base is best at simulating acceleration.

④ Media Composition:

Media composition involves editing single media i.e, changing its objects, such as characters, audio sentences, video frames and attributes such as the font of a character, recording speed of an audio sentence or color of an image.

1) Text and Graphics Editors: Text editors provide writing and modifying facilities to compose text in a document. There are either separate text editors or text is embedded in graphical tools.

Graphics editors use facilities at the user interface for editing structural representations of graphical objects and for modifying higher level operations on graphical objects.

2) Image Editors: Image editors are suitable for applications when neither the application nor the underlying software package keeps a record of primitives.

3) Animation Editors: Animation editing is based on graphical editors with respect to 2D or 3D spatial graphic objects. The additional component in animation is time, which can also be edited. (4D editing).

4) Sound Editors: Sound tools help in locating and storing sounds, recording and playback, and editing operations.

5) Video Editors: Video editors are based on image editors for editing individual frames. Editing functionality of video editors may combine several cuts into one sequence, adjust audio separately from video and add video transition effects.

④ Media Integration:

Media integration specifies relationships between various media elements to represent and manipulate a multimedia object.

1) Multimedia Editors: Multimedia editors support the ability to manipulate multimedia documents that include structured text, bitmap images, graphics, video, digitized voice etc. An example is BBN's Diamond Multimedia Editor.

2) Hypermedia / Hypertext Editors: It consists of multimedia and non-linear links among the information. The documents are stored in multimedia databases in a structured representation (e.g., HTML database for HTML documents).

3) Authoring Tools: Authoring system is a set of software tools for creating multimedia applications. A person who creates applications for multimedia integration is called an author. The process together is called authoring.

⑤ Media Communication:

Media communication denotes applications which exchange different media over a network via tele-services to multimedia application end users.

1) Tele-Services: Tele-services are services provided by communication systems which are based on and make use of audio and video data.

2) Interactive Services: Interactive services include an exchange of control data between remote sites to influence the presentation of continuous media data.

3) Distribution Services: Distribution services are services for the distribution of information to different remote sites. They are one-way communication from the broadcasting source to the remote destinations.

④ Media Consumption:

Media consumption is the act of viewing, listening or feeling multimedia information. Viewing and listening are the most common ways to consume media. Feeling multimedia information can be experienced in motion-based entertainment parks (for e.g. virtual reality).

Presentation of multimedia information is often done through authoring tools, as well as by other tools. Simplicity of presentation is one major requirement of media consumption, which needs to be considered by each public media application.

⑤ Media Entertainment:

1) Virtual Reality (VR): It is used to describe physical environments with the help of head-mounted displays.

Virtual Reality is a simulated experience in which user believes it as a real world. A person using virtual reality equipment is able to look around the artificial world, move around in it, and interact with virtual features or items. Computer based VR systems are three-dimensional and interactive.

2) Interactive Video: Interactive video research addresses various problems in the area of interactive TV and Video-On-Demand. Interactive TV specifies that the TV viewer can become more active participant than in the case today. Video-On-Demand (VOD) services represent a class of applications where video information is accessed from one or more video servers.

3) Interactive Audio: In interactive audio, the audio server will store music libraries, and the listeners will be able to retrieve their requested song from such library. An example of such system is lyricTime research prototype from Bellcore.

4) Games: The modern computer game is an audiovisual engine capable of keeping an internal model of some dynamic system. Games are based on interactivity between the user and the computer. Games can be divided according to storage location, environment sophistication and no. of players.

Q. Application of Telemedicine in Multimedia:

Telemedicine services address elderly, sick or disabled people who cannot leave their homes. Over the telecommunication network, these people can consult their doctor and get medical information and other administrative health information.

Tele-diagnosis uses a conversational service implemented, for example, through video-telephony. Access to medical and health care information can be achieved through retrieval services.

Tele-surgery allows one to consult a specialist on demand for crucial and difficult operations performed at local hospitals.

Q. Application of e-learning in Multimedia:

Multimedia-based technologies have significant impact on our daily life learning activities as they have shifted the education from teacher centered to learner centered. E-learning provides opportunities to people to take course online and provide a virtual classroom environment on the web through teacher, learner interactions, course material distribution based on interactive multimedia. Interactive multimedia offers learners different forms of media to match their learning style.

E-learning is one of the important fields of research in education. The purpose of E-learning is to automate education. Multimedia in learning supports the effectiveness and efficiency of the learning process. It is able to entertain during the learning process.

④ Application of Video conferencing in Multimedia:

A multimedia conferencing system enables people to work together across geographically distant locations without the need to meet at one site. They communicate among each other face-to-face mode using motion video, audio and textual information in each direction. The audio and video quality depends on the platform.

Video conferencing is used either in an office environment or in a conference room. Desktop video conferencing systems often include a dedicated shared white-board application. Products of video conference contain wide range of features like live video image can be added to a presentation.

⑤ Application of Video-on-demand in Multimedia:

Video-On-Demand (VOD) services represent a class of applications where video information is accessed from one or more video servers. The customer selects a movie out of a large set of movies; the transmission starts within a few seconds; the user can have functions like stop, continue, fast forward and rewind. It allows viewers to watch at any time, control what they watch and use media controls. Subscription services such as Netflix and Amazon Prime allowed users to stream video for a monthly fee. The video site YouTube also hosted many videos that could be streamed on demand.

#Some additional important Q&A's:

[Impl]

Micro-syllabus
OR Model set
questions

Q1. Explain application development life cycle of multimedia systems.
Ans: The different stages in multimedia application development are:

1) Planning and Costing: The main concerns in this phase are:

- To capture the ideas and requirements of clients.
- To identify the potential audience and users of the application.
- To find the benefit that will gain from developing the application.
- To evaluate the feasibility and costs of the entire project, including all tasks of production, testing and delivery.
- Hardware, Software, Contents and Skills are the most important consideration of this phase.

2) Design and Production: Under this stage following sub-stages are carried out:

- Data gathering
- Navigation map structure design.
- Media control design
- Interface designing.
- Integration.

Actual development and production of application is done in this stage.

3) Testing: In every project, the testing stage ensures that the product to be free from bugs. Apart from bug elimination, another aspect of testing is to ensure that the multimedia application meets the objectives of the project. It is also necessary to test whether the multimedia project works properly on the planned delivery platforms and meets the needs of the clients.

Q1 **Delivery:** The final stage of the multimedia application development is to pack the project and deliver the complete project to the end-user. This stage has several steps such as:

- Implementation
- Maintenance
- Shipping and marketing.

Q2, Explain the advantages and disadvantages of bit map over vector image.

Ans: **Advantages:**

- Allows us to create any image regardless of its complexity.
- Used almost everywhere, from small badges to posters.
- High processing speed.
- Higher quality.
- Best suits popular input-output devices such as monitors, scanners, cell phones.

Disadvantages:

- Excessively large size of simple images.
- Impossibility of perfect scaling.
- The inability to print on a vector plotter.

Q3. Differences between Video and Animation.

Video	Animation.
<ul style="list-style-type: none">i) Videos are made by using video cameras.ii) The real movements are captured by shooting with cameras.iii) Creating a video is easier task.iv) It has higher quality rate of frames per second.v) Does not involve creativity.	<ul style="list-style-type: none">i) Animation involves drawing of sketches of objects.ii) Objects are placed in various frames, to illustrate as if objects are moving.iii) Animation creation is difficult compared to creating a video.iv) It has lower quality rate of frames per second.v) Involves creativity.

Q4. What are the differences between lossy and lossless compression with example.

Ans:

Lossy वा lossless कोने यहां सोचो,
exam मा तो side मा जोका सके content
लेरेन आंके देकिन

lossy Compression	lossless Compression.
i) lossy compression is the method which eliminate data which is not noticeable.	i) lossless Compression method does not eliminate the data which is not noticeable.
ii) In lossy compression, a file does not restore or rebuilt in its original form.	ii) While, the lossless compression, a file can be restored in its original form.
iii) In lossy compression, data's quality is compromised.	iii) But lossless compression does not compromise the data's quality.
iv) lossy compression reduces the size of data.	iv) But lossless compression does not reduce the size of data.
v) lossy compression is used in images, audio, video.	v) lossless compression is used in text, images, sound.
vi) lossy compression has more data holding capacity.	vi) lossless compression has less data-holding capacity.
vii) <u>Examples:</u> Transform coding, Discrete Cosine Transformation, fractal compression etc.	vii) <u>Examples:</u> Run-Length Encoding, Huffman Coding, Arithmetic encoding etc.

Q5. Compare quality with file size?

Ans: ---



**If my notes really helped
you, then you can support
me on esewa for my
hardwork.**

Esewa ID: 9806470952