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# M.A. Notes

# Assignment

## \* Hardware Multimedia :-

- a Microphones
- b Video Camera
- c Scanner
- d Sound Card
- e Audio device
- f Camera

## \* Software multimedia :-

- Text Editor - [ Notepad  
MS word  
open office writer ]
- Audio Editor - [ Sound Recorder  
Adobe Audition ]
- Video Editor - [ Adobe premier  
Pinackel studio ]
- Animation - [ Macromedia flash  
magic morph ]

## \* Specification of different Capturing devices :-

The Capturing devices divided into two main groups internal and external Internal devices need to be installed on an empty PCI Slot on the motherboard

(1) Graphics Card with integrated video Capturing chip

② firewire Cards

③ Video Camera

④ Camera

## \* Communication devices:-

(a) Bluetooth device

(b) Infrared device

(c) Modern Cover phone (live)

(d) Smartphone

(e) Network Cards

(f) wifi devices (using Ethernet)

(g) E mail

(h) fax

- (i) Pager
- (ii) Hotspot

## \* Storage devices

SD Card  
Pen drive  
Hard disk  
CD (Compact disk)  
USB driver  
DVD  
Tape Cassette  
Memory Card  
SSD

## \* Application of multimedia :-

- (a) School
- (b) Hospital
- (c) bank
- (d) College
- (e) Hotel
- (f) education
- (g) Companies
- (h) Lab (Computer)
- (i) Libraries

## \* Display devices

- a CRT - Monitor
- b flat - panel display
- c LCD
- d projector
- e TV
- f Oled display

~~Qay~~

## Advantage of multimedia :-

- (1) Multimedia changes the effect of next presentation.
  - (2) It includes the quality of presentation and retains the attention of audience.
  - (3) It can be used for education as well as entertainment purpose.
  - (4) It is quick and easier to operate for the instruction.
  - (5) Multimedia presentation can be modify easily.
- ④ ~~Disadvantage :-~~

## Disadvantage of multimedia :-

- (1) Non-interactive (if one way, no feedback)
- (2) Complex to Create
- (3) Time Consuming
- (4) Use of multimedia is expensive

## Elements of multimedia -

- |               |                  |
|---------------|------------------|
| (1) Text      | static Elements  |
| (2) Graphics  |                  |
| (3) Video     |                  |
| (4) Audio     | Dynamic Elements |
| (5) Animation |                  |

## Types of Multimedia

### (1) Linear multimedia

- (a) Linear Active Content progresses without any navigational control for the viewer.
- (b) Cinema presentation is an example of linear multimedia.

### (2) Non-Linear Multimedia

- (a) Non-Linear Content offers user interactivity to control progress as used with a Computer game.
- (b) Hypermedia is an example of non-linear multimedia.

## Multimedia medium of delivery -

- (1) Web-based Multimedia
  - (a) Multimedia Technology
  - (b) Internet Technology
- 
- ### (2) CD based multimedia

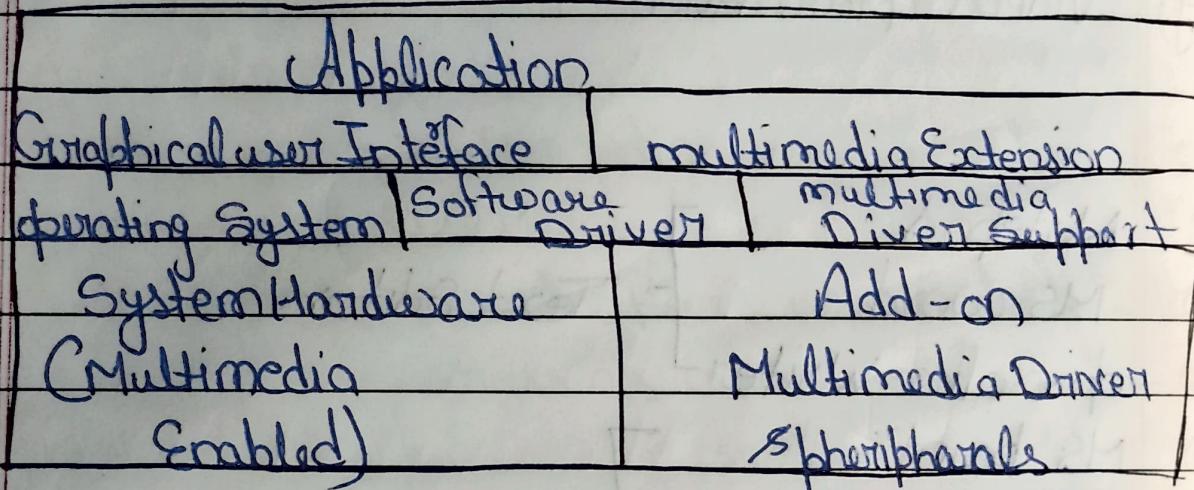
## Hardware & Software for Editing multimedia

- (a) Microphones
- (b) Video Camera
- (c) Scanner
- (d) Sound Card
- (e) Audio device
- (f) Camera
- (g) Video Capture device

- (1) Notepad
  - (2) MS Word
  - (3) open office Writer
  - (4) MS Paint
  - (5) Adobe Photoshop
  - (6) Coral Draw
  - (7) Sound recorder
  - (8) Adobe Audition
  - (9) Adobe Premier
  - (10) pi Studio
  - (11) Macromedia Flash
  - (12) Magic Morph
- Text Editor
- Audio Editor
- Video Editor
- ANIMATION

# Multimedia System Architecture

Multimedia consist a large variety of technology & integration of multiple architectures interacting in real time. All of these multimedia capabilities must integrate with the standard user interfaces such as Microsoft Windows.



## Architecture of Multimedia Environment

The right side shows the new architectural entities required for supporting multimedia applications. For each special devices such as scanners, video cameras, sound equipment. A software device driver is needed to provide the interface from an application to the device.

## Distributed Multimedia System

It consists of multimedia database, proxy and information server and client which are intended for the distribution of multimedia content over the network.

## DMS (Distributed Management System)

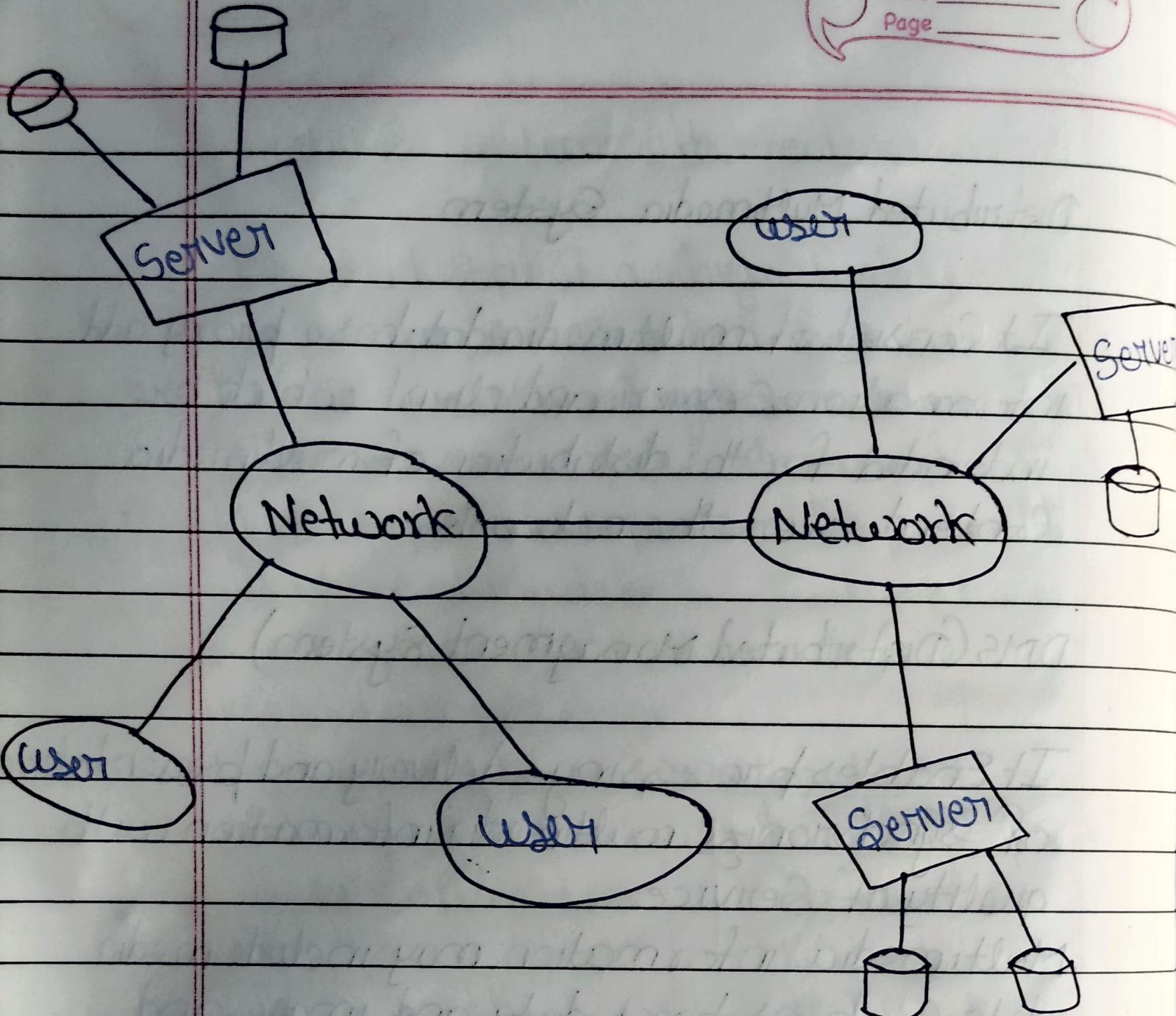
It enables processing, delivery and presentation of synchronized multimedia information with quality of service.

Multimedia information may include media data such as text data and image and continuous media data such as video and audio.

## Architecture of distributed Multimedia System

DMS architecture consists of three basic components i.e:-

- (1) An Information Server
- (2) A wide area network
- (3) A multimedia client (User).



## Sound

- 1 Sound is the element of multimedia and it is a meaningful speech in any language
- 2 It can provide the listener pleasure of music and ambience of background music
- 3 Sound can create waves of pressure and these waves spread like the ripples
- 4 Multimedia System Sounds either Digital or MIDI
- 5 System Sounds are assigned to various system events such as startup and warning
- 6 In windows available System Sounds include Start.WAV, CHIMES.WAV, CORD.WAV.
- 7

## MIDI Vs DIGITAL Audio

1. MIDI - (Musical Instrument Digital) is a communication standard developed in 1981 for electronic musical instruments and computers.
2. MIDI - provides a protocol for passing detailed description of musical such as the sequence of and what instruments will play these.
3. Working with midi requires knowledge of music theory.
4. Midi is device dependent while digitized audio is device independent.
5. MIDI files will be 200 to 1000 times smaller than CD quality Digital audio files.
6. MIDI files don't take up as much as RAM Disk space and CPU Resource. midi files sound is better than digital audio files.
7. MIDI - Data is Completely editable length of a midi file can be changed without effecting the pitch of the music or degrading audio quality.

## DIGITAL AUDIO :-

1. you can digitalized sound from a microphone, tape recorder, live audio, CD's and t.v broadcast
2. DIGITAL Audio data is the actual representation of sound stored in the form of
3. Sample represent the amplitude (loudness) of sound at a discrete point of time
4. quality of frequency that is the no. of samples taken per sec.
5. Sampling frequency which are used in digital audio are 44.1 khz, 22.05 khz and 11.025 khz

# Compression / DeCompression

The process of Reducing the Volume of data by applying a Compression technique is Called data Compression.

the resulting data is Called Compressed data.

the Reverse process of reproducing the original Data from Compressed data is called deCompression

## Reasons for data Compression

- 1 Reduce file Size
- 2 Save Disk Space
- 3 Increase transfer Speed at a given rate
- 4 allow real time transfer at a given data

## Type of Compression technique :-

Compression technique can be Categories based on the Consideration

- 1 Lossless or lossy data Compression

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## Loss Less & Lossy

If the decompressed data is the same as the original data It is referred as loss less compression  
otherwise the compression is lossy

OR

- 1 In lossless Compression the time to decompress and to compress are roughly the same
- 2 In a lossy Compression the time taken for compression is usually much longer than deCompression

Software / Hardware

A Compression technique may be implemented either in hardware and Software.

as Compare to Software :-

Code -

Hardware Codex offer better quality and performance

# Video Compression technique

the goal of Video Compression is to massively reduce the amount of data required to store the digital video file. while retaining the quality of the original video.

## types of Compression

- ① Realtime vs Not Realtime
- 2 Symmetrical vs asymmetrical
- 3 Compression ratio
- 4 Lossless vs lossy
- 5 Interframe vs Intraframe
- 6 bit rate Control

## Realtime vs Non Real time

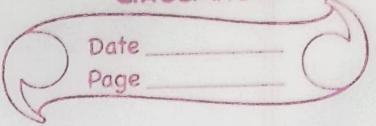
Some Compression Systems Capture, Compressed disk, decompressed and play back video 30fps all in real time there no delay.

Other System are only Capable of Capturing some of 30fps & are Only Capable of playing back some of the frames

In frame rate is one of the most noticeable video deficiencies, in addition the missing frames will contain extremely important Lips Sync Data.

If the movement of a person lips is missing due to dropped frames during Capture or play it is impossible to match the audio correctly with the video

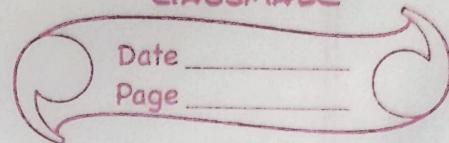
# Topic



- 1 Evaluation and visibility
- 2 Video Compression technique
- 3 Introduction to Standardization of Algorithm
- 4 file format
- 5 History of RIF, TIFF
- 6 Introduction to RIFF, AVI, JPEG - Objectives
- 7 Architecture
- 8 JPEG - DCT Encoding
- 9 Quantization
- 10 JPEG - Statical Coding
- 11 predictive lossless Coding
- 12 JPEG - performance
- 13 MPEG - objectives
- 14 Architecture,
- 15 BIT Stream Syntax performance
- 16 MPEG2 & MPEG4
- 17 Need
- 18 Type

# Multimedia Authoring and User interface

classmate



## Topic

- 1 Multi Media Authoring System and its type.
- 2 Hypermedia Application Design Consideration
- 3 User interface Design
- 4 Information Access,
- 5 Object display / playback Issues