5. Hypermedia

5.1 Multimedia authoring and User Interface

5.1.1 Multimedia Authoring Systems

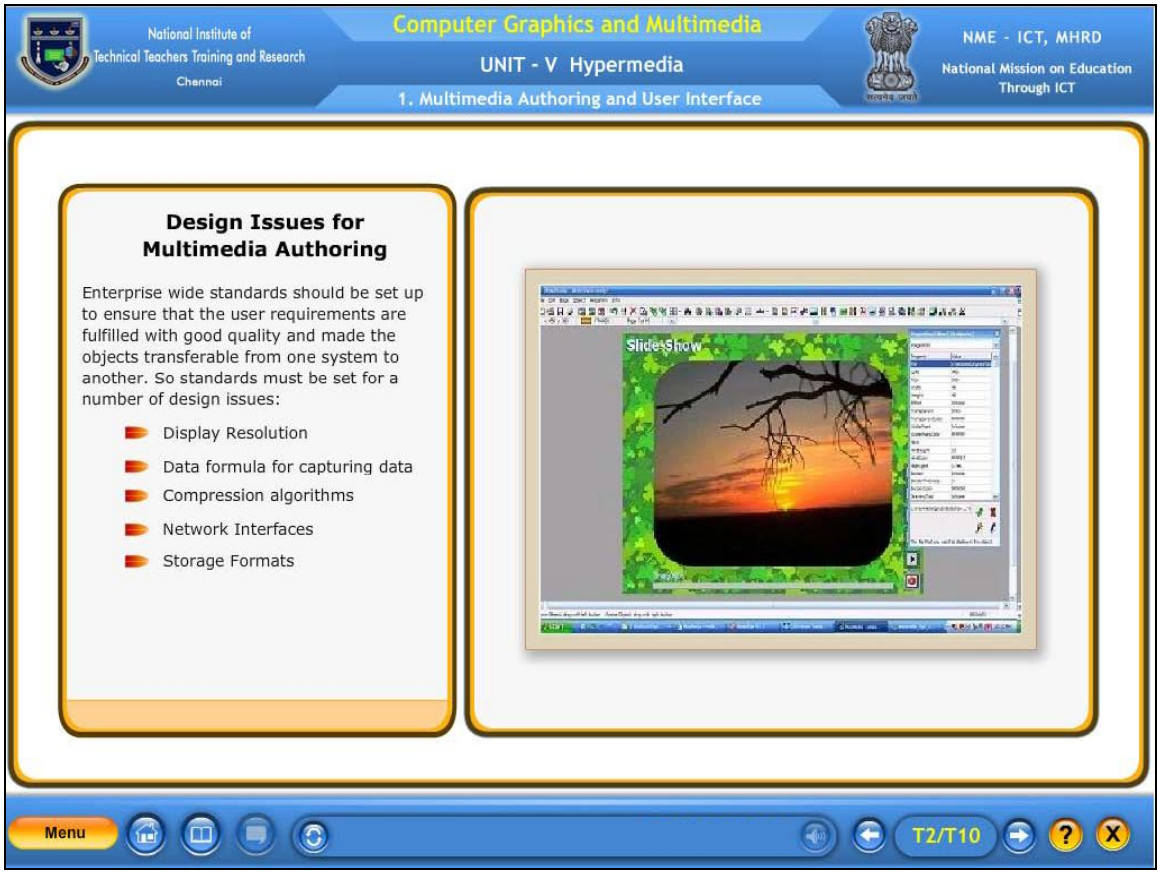
Multimedia Authoring Systems are designed with two primary target users: They are

- Professionals who prepare documents, audio or sound tracks, and full motion video clips for wide distribution.
- Average business users preparing documents, audio recordings, or full motion video clips for stored messages or presentations.
- The authoring system covers user interface. The authoring system spans issues such as data access, storage structures for individual components embedded in a document, the user's ability to browse through stored objects, and so on.
- Most authoring systems are managed by a control application. The authoring system is called in when a user selects an EDIT function in the control application menu.
- The control application managing the authoring system must determine storage location and compression format according to the type of multimedia object, the capturing equipment in use, and the software drives and compression standards supported by the authoring system.
- The control application must also be designed to handle sufficient cache storage to manage compressed as well as decompressed objects before they are dispatched to other multimedia server objects.

5.1.2 Design Issues for Multimedia Authoring

Enterprise wide standards should be set up to ensure that the user requirements are fulfilled with good quality and made the objects transferable from one system to another. So standards must be set for a number of design issues:

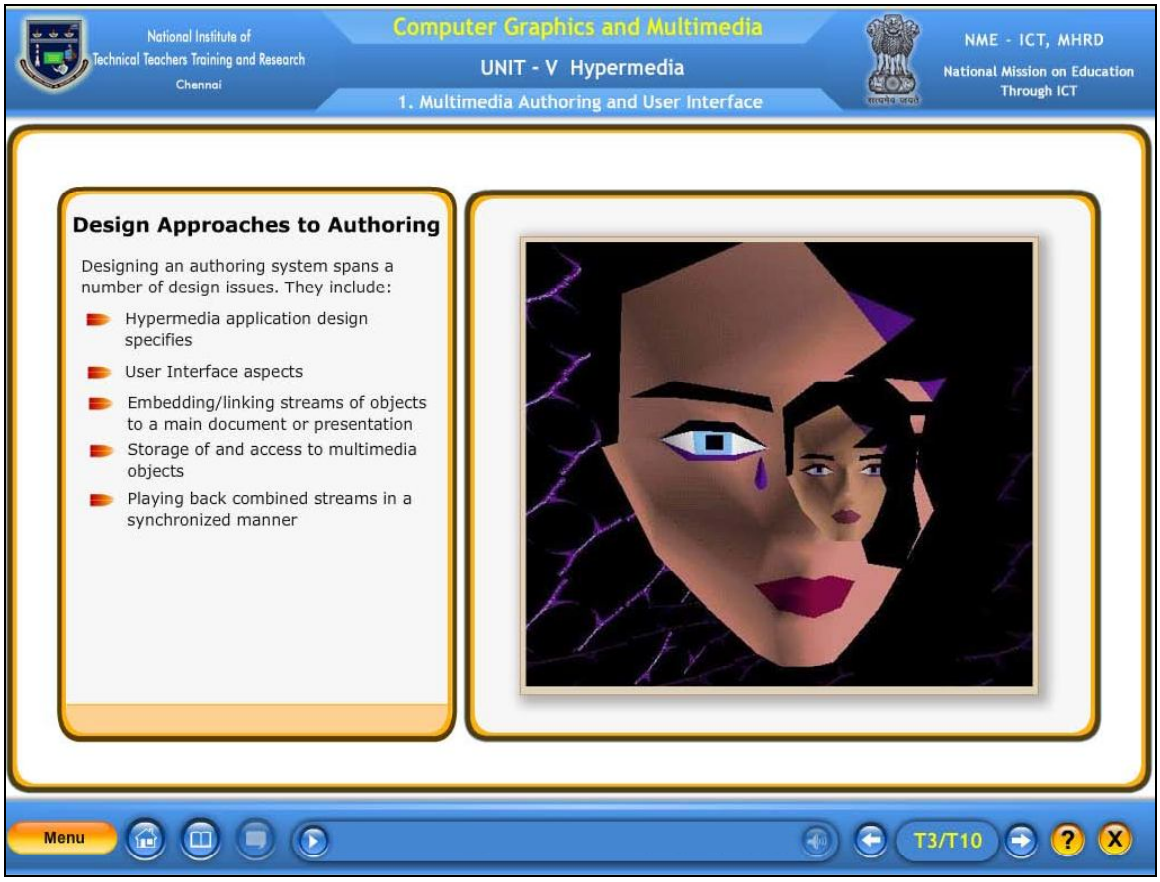
- Display Resolution.
- Data formula for capturing data.
- Compression algorithms.
- Network Interfaces.
- Storage Formats.



5.1.3 Design Approaches to Authoring

Designing an authoring system spans a number of design issues. They include:

- Hypermedia application design specifies
- User Interface aspects
- Embedding/linking streams of objects to a main document or presentation
- Storage of and access to multimedia objects
- Playing back combined streams in a synchronized manner
- A good user interface design is more important to the success of hypermedia applications. User interface presents a window to the user to control storage and retrieval, to insert objects in the documents and to specify the exact point of insertion, and to index marks for combining different multimedia streams and rules for playing them back.
- The authoring system must allow playing several streams in a coordinated manner to produce a final product.



5.1.4 Types of Multimedia Authoring System

Dedicated authoring systems: - is the simplest authoring systems.

- It is usually designed for a single user
- It needs a very intuitive interface

Timeline based authoring:

- Objects are placed along a timeline
- The composition of objects is based on time
- This makes the adjustment of objects' lengths difficult
- Information about the relationship between objects is lost
- Newer systems allow authoring on the object composition level

Structured authoring systems:

- This allows explicit manipulations of the structure of a multimedia presentation
- Explicit representation of the structure allows modular
- authoring of component objects
- Good authoring systems should allow the user
- to define an object hierarchy
- to specify the relative location of each object within that hierarchy
- to make temporal adjustment to objects.

Programmable authoring systems:

- This allows the dynamic manipulation of the objects
- The actual elements to be displayed or the action to be performed by an object is determined at runtime
- The program is interpreted by an interpreter embedded in the runtime system

5.1.5 Multisource Multiuser Authoring System

We can have an object hierarchy in a geographic plane; that is some objects may be linked to other objects by position, while others may be independent and fixed in position. We need object data, and information on composing it.

Composing means locating it in reference to other objects in time as well as space. Once the object is rendered (rendering here means display of multimedia object on screen) the author can manipulate it and change it's rendering information must be available at the same time for display.
If there are no limits on network bandwidth and server performance, it would be possible to assemble all required components on queue at the right time to be rendered.

In Addition to the multi-user composing function, a multi user authoring system must provide resource allocation and scheduling of multimedia objects. This gives raise to a number of synchronization issues.

5.1.6 Telephone Authoring Systems

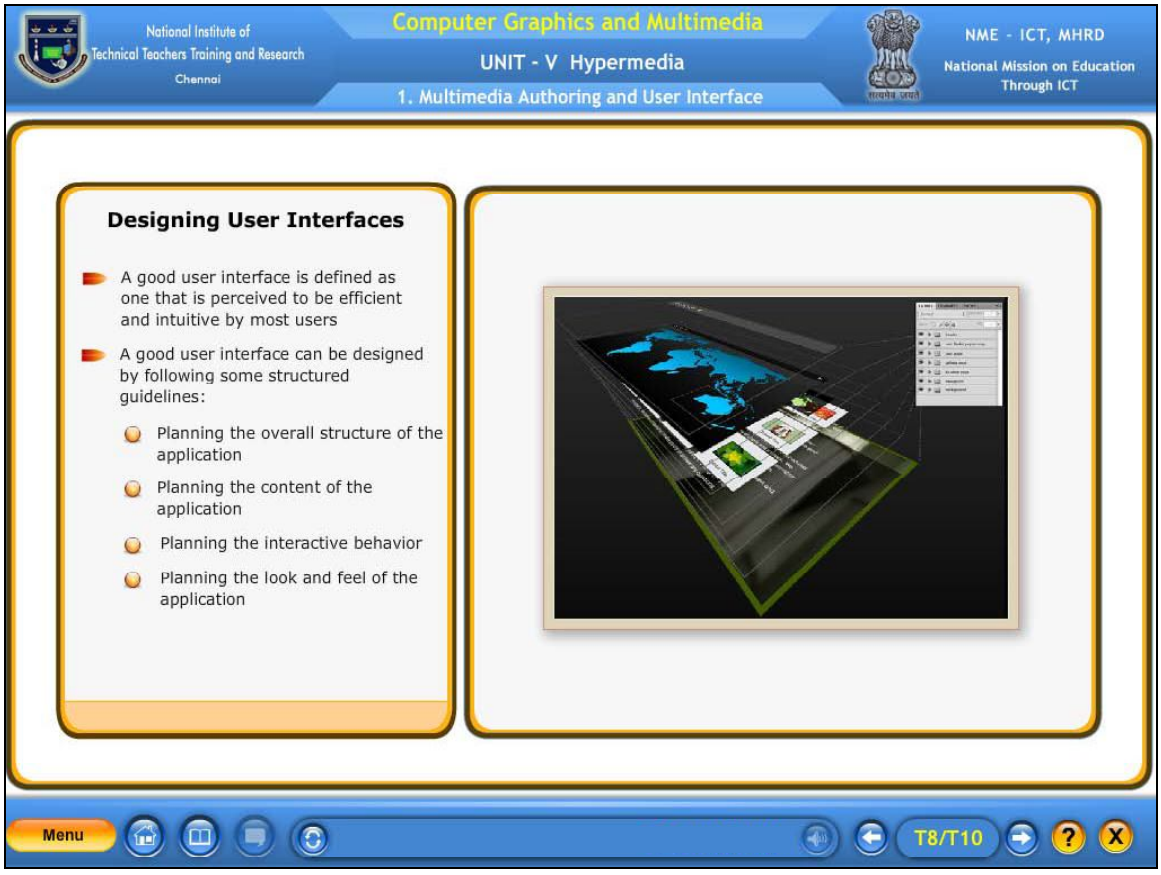
- There is an application where the phone is linking into multimedia electronic mail application.
- The phone can be used as a reading device by providing full text-to-speech synthesis capability so that a user on the road can have electronic mail messages read out on the telephone.
- The phone can be used for voice command input for setting up and managing voice mail messages. Digitalized voice clips are captured via the phone and embedded in electronic mail messages.
- As the capability to recognize continuous speech is deployed, phones can be used to create electronic mail messages where the voice is converted to ASCII text on the fly by high-performance voice recognition engines.

5.1.7 Navigation through the Application

- Navigation - It refers to the sequence in which the application progresses .
- Direct navigation - completely predefined, in which case the user needs to know what to expect with successive navigation actions.
- Free form navigation - the user determines the sequence of actions.
- Browse navigation - the user is provided a large number of choices.
- An important aspect of any multimedia system is to maintain a clear perspective and the relationship between those objects.
- Each application has its own specific navigation requirements.
- Navigation options must be determined after display or entry of each object (node); a node is a branch point where the user has two more paths.
- One example of a node is a data entry field where the user can enter the data or open another screen to browse through a list of potential objects.
- Another example of a node is a completion of data entry in a dialog box, requiring the user to save the data in objects or cancel the operation.

- The operation from the display or entry of one object to display or entry of the next object is called a link. Together, nodes and links can be used to build a navigation model.

5.1.8 Designing User Interface



- A good user interface is defined as one that is perceived to be efficient and intuitive by most users
- A good user interface can be designed by following some structured guidelines

  - Planning the overall structure of the application
  - Planning the content of the application
  - Planning the interactive behavior
  - Planning the look and feel of the application

5.1.9 Different kinds of UI development tools

- User interface design for multimedia applications is more involved than for other applications due to the number of types of interactions with the user.
- Consequently, rather than a simple user interface dialogue editor, multimedia applications need to user four different kinds of user interface development tools. We can classify these as the following:
  1. Media editors
  2. An authoring application
  3. Hypermedia object creation

4. Multimedia object locator and browser

Media Editors

- A media editor is an application responsible for the creation and editing of a specific multimedia object such as an image, voice, or video object.
- Whether the object is text, image, voice, or full-motion video, the basic functions provided by the editor are the same: create, delete, cut, copy, paste, move and merge.
- The real challenge is to present these basic functions in the most natural manner, that is, in the manner that is intuitive to the user.
- For example, the move operation in most visual editors is represented by highlighting text and dragging and dropping it to the new location a modern screen representation of the basic function performed in essentially the same manner using lead typeset characters by printing shops a couple of decades back.
- The VCR metaphor is more appropriate because that is what you use when watching a videocassette of a movie at home. The media editor for full-motion video clips must provide the VCR metaphor.

Authoring Application

- The real challenge is to present these basic functions in the most natural manner, that is, in the manner that is intuitive to the user
- Authoring Application is also known as authorware, a program that helps you write hypertext or multimedia applications
- Authoring tools usually enable you to create a final application merely by linking together objects, such as a paragraph of text, an illustration, or a song
- By defining the objects' relationships to each other, and by sequencing them in an appropriate order, authors (those who use authoring tools) can produce attractive and useful graphics applications

Hypermedia Object Management

- Authoring Application is also known as authorware, a program that helps you write hypertext or multimedia applications
- A first embodiment of the present invention uses the World Wide Web hypermedia system. A user initializes browser software that allows the user to browse and change various attributes of objects in the system
- The browser communicates with a server that includes an http adapter and a gateway. The gateway can access objects in the system and generate HTML code in accordance with the objects
- One embodiment of the present invention uses hierarchical tree-oriented objects. These objects are "self-describing" (also called "introspective")
- The server queries the objects in response to the queries from the browser and each queried object responds with information about itself
- In another preferred embodiment, the server initiates queries of the objects and retains this information for use in responding to later queries from the browser

Multimedia Browser

- Media Browser is a media aggregator plug-in for Media Center that takes your recorded, digital, or ripped media and presents it in a simple, easy to use interface. Media Browser prides itself on delivering a fast, intuitive, media rich experience for the whole family

5.1.10 Special Metaphors for Multimedia Applications

Special Metaphors:
User interface metaphors are designs based on real world objects. For user interface metaphors that were not known to users, a new design took sometime to take hold.

The organizer metaphor: Lotus Organizer
This is a clear example of a close adaptation of an existing user interface to a GUI.

The telephone metaphor:
Combines a well-known user interface with other GUI element to provide a more convenient means of access information and perform communication.

Aural user interface:
The real challenge in designing AUI systems is to create an aural desktop that substitutes voice and ear for the keyboard and display, and be able to mix and match them.

The VCR metaphor:
This is one of the most common user interfaces.

Self Test

1. The user interface design is more important to success of _____applications.
    a. Multimedia
    b. Hypermedia
    c. Flash
    d. Multiprocess

    (**Answer**: Hypermedia)

2. Multimedia applications need to use different kinds of user interface development tools?

    a. True
    b. False

    (**Answer**: True)

3. An Authoring application is also known as _____ .

    (**Answer**: Authorware)

4. The authoring system must allow playing several stream in a coordinated manner to produce a final product.
    a. True
    b. False

(**Answer**: True)

5. _____ is the one type of user interface development tool.

(**Answer**: Media Editor)

5.2 Hypermedia Messaging

5.2.1 Concept of Hypermedia Messaging

- Communication among members of a workgroup, among workgroups and departments, and among divisions is crucial for the success of any business enterprise.
- The communication can be face-to-face, via telephone and phone mail, via written communications – such as letter or electronic mail (e-mail), or via recorded sound and pictures.
- E-mail has emerged as a very well understood and used medium for communication in a business setting due to its speed and its close equivalence to written communications.
- An organization's objectives in deploying e-mail-based document interchange services should be to reduce paper output and in-house paper-handling costs, and to streamline work processes by eliminating redundant functions
- E-mail-based document interchange, generally known as messaging services, contributes to corporate productivity in the following important ways:

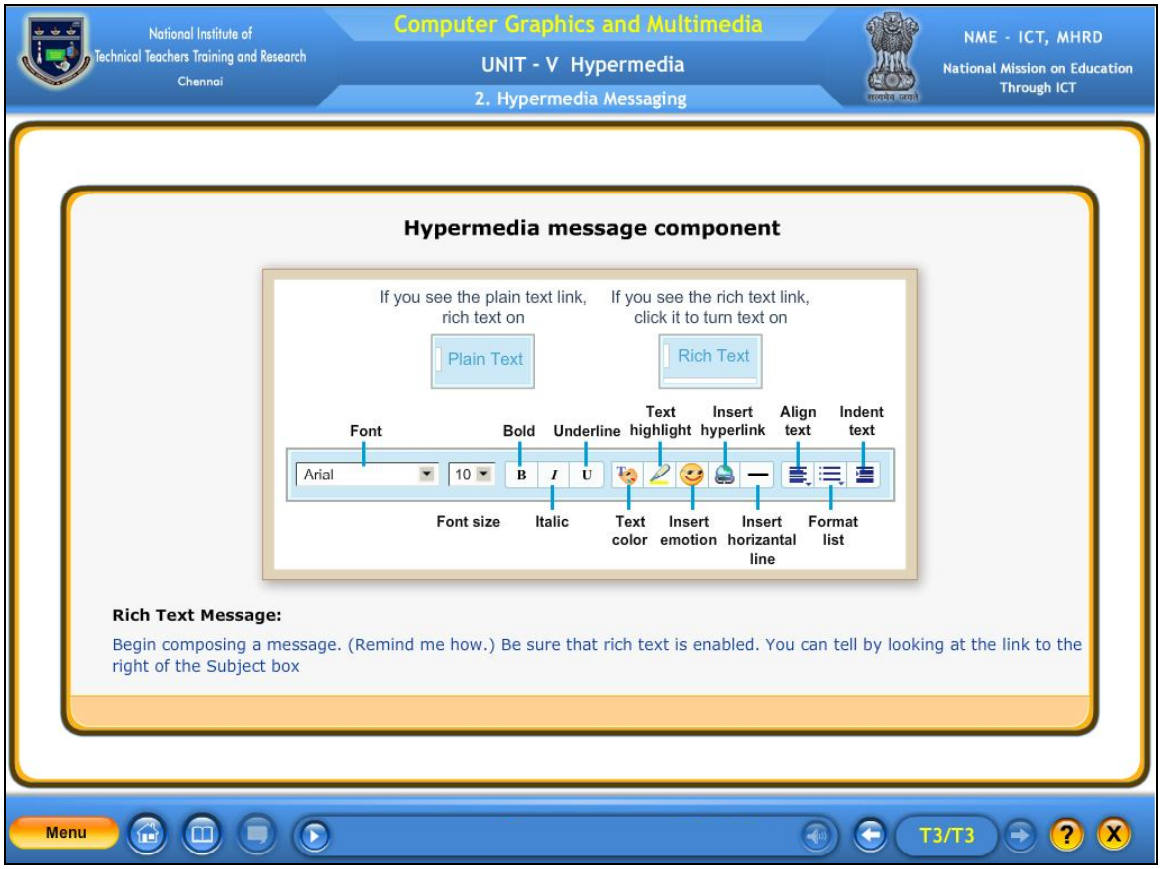
    1. It strengthens the automation of the document life cycle (creation, transport, interchange, and output).
    2. It allows document sharing (for viewing or revising) without forcing an organization to standardize on a particular word processor solely to achieve document interchange.
    3. It cuts down on the paper output generated by organizations that must share documents.

5.2.2 Mobile Messaging

- Short Message Service (SMS) is a communication service standardized in the GSM mobile communication system, using standardized communications protocols allowing the interchange of short text messages between mobile telephone devices.

- SMS text messaging is the most widely used data application on the planet, with 2.4 billion active users, or 74% of all mobile phone subscribers sending and receiving text messages on their phones.
- The SMS technology has facilitated the development and growth of text messaging. The connection between the phenomenon of text messaging and the underlying technology is so great that in parts of the world the term "SMS" is used as a synonym for a text message or the act of sending a text message, even when a different protocol is being used.
- SMS as used on modern handsets was originally defined as part of the GSM series of standards in 1985[1] as a means of sending messages of up to 160 characters (including spaces), to and from GSM mobile handsets.
- Since then, support for the service has expanded to include other mobile technologies such as ANSI CDMA networks and Digital AMPS, as well as satellite and landline networks. Most SMS messages are mobile-to-mobile text messages, though the standard supports other types of broadcast messaging as well.

5.2.3 Hypermedia Message Component



Text Message:

- Text messaging or texting is a colloquial term referring to the exchange of brief written messages between mobile phones, over cellular networks. While the term most often refers to messages sent using the Short Message Service (SMS), it has been extended to include messages containing image, video, and sound content, such as MMS messages.
- Individual messages are referred to as "text messages" or "texts".
- The most common application of the service is person-to-person messaging, but text messages are also used to interact with automated systems, such as ordering products and services for mobile phones, or participating in contests.
- Advertisers and service providers use texts to notify mobile phone users about promotions, payment due dates, and other notifications that were previously sent by post or left as voicemail.
- There are internet services available that allow users to send text messages free of direct charge to the sender.

Rich Text Message:

- Begin composing a message. (Remind me how.) Be sure that rich text is enabled. You can tell by looking at the link to the right of the Subject box

Voice Message:

- Voice message refers to a message that could be sent to a destination using voice media.
- Voice itself could be 'packaged' and sent through the IP backbone so that it reaches its marked 'address'.
- In a technical sense, the process of sending 'voice packets' is a semi passive way of communication.
- However, given the speed at which it could be delivered can make the communication sound seamless.

Full Motion Video Message:

- Those live-action video clips showing the computer's desktop, menus and files in motion are called screen casts. To take your own videos, you need a screen casting application. Programs like CamStudio are available free, while for about $800 you can buy Adobe Captivate, software aimed at education and training professionals. You can also record screen casts right in your browser on sites like Screen Castle and Screen cast-O-Matic. When looking for screencasting software to suit your needs, read the program specifications. Some less-expensive options may not record sound along with the video or may limit recording time.

Self Test

1. SMS stands for
    a. Simple Message Service
    b. Standard Message Service
    c. Short Message Service
    d. Second Message Service

    (**Answer**: Short Message Service)

2. SMS is a _____ messaging, the most widely used data application on the planet.

    (**Answer**: text)

3. Hypertext + Multimedia = Hypermedia.
    a. True
    b. False

    (**Answer**: True)

5.3 Creating Hypermedia Message

5.3.1 Overview of planning phase of preparing hypermedia message

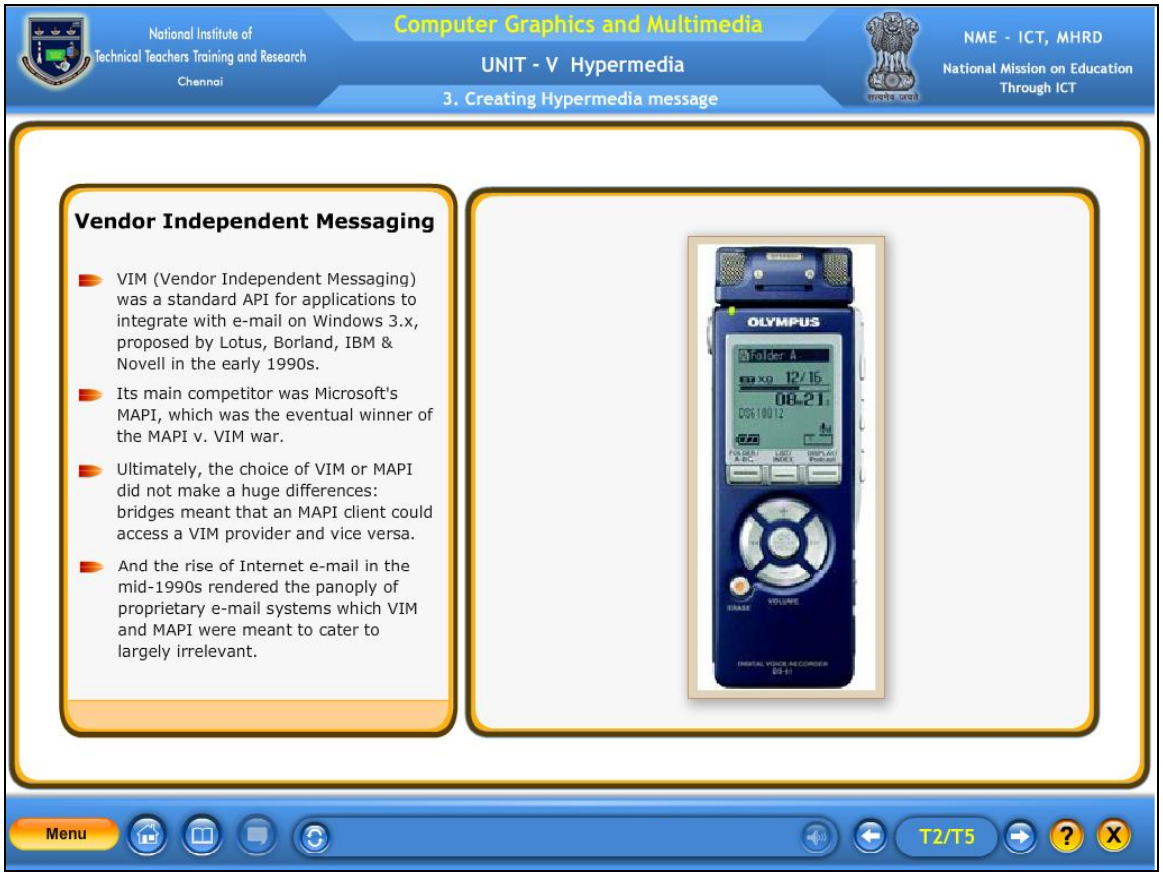
- The planning phase for preparing the hypermedia message consists of determining the various sources of input. These can include any of the following:

    1. A text report prepared in a word-processing system.
    2. A spreadsheet in a spreadsheet program.
    3. Some diagrams from a graphics program.
    4. Images of documents such as product descriptions or schematics.
    5. Sound clips of opinions expressed by other reviewers.
    6. Video clips describing products or recordings of meeting highlights.

- It must be determined which components are required for the message, in what sequence should they be, and where in the text report they should be referenced.
- The lengths of each component must be determined, especially of video clips.
- The container for multimedia objects is almost always a text document in most messaging systems.
- The body of the message may be a short cover message; while the text report may itself be an attachment rather than the main message, or a continuation of a short cover letter in the body field of the main message.
- If the report is an attachment, the linked or embedded objects may be linked or embedded in an attachment rather than in the main text message.
- Careful planning is essential to ensure that the capabilities of the messaging system are used appropriately.

5.3.2 Vendor Independent Messaging

- VIM (Vendor Independent Messaging) was a standard API for applications to integrate with e-mail on Windows 3.x, proposed by Lotus, Borland, IBM & Novell in the early 1990s.
- Its main competitor was Microsoft's MAPI, which was the eventual winner of the MAPI v. VIM war.
- Ultimately, the choice of VIM or MAPI did not make a huge differences: bridges meant that an MAPI client could access a VIM provider and vice versa.
- And the rise of Internet e-mail in the mid-1990s rendered the panoply of proprietary e-mail systems which VIM and MAPI were meant to cater to largely irrelevant.



5.3.3 MAPI Support

- Messaging Application Programming Interface (MAPI) is a messaging architecture and a Component Object Model based API for Microsoft Windows. MAPI allows client programs to become (e-mail) messaging-enabled, -aware, or -based by calling MAPI subsystem routines that interface with certain messaging servers.
- While MAPI is designed to be independent of the protocol, it is usually used with MAPI/RPC, the proprietary protocol that Microsoft Outlook uses to communicate with Microsoft Exchange.
- Simple MAPI is a subset of 12 functions which enable developers to add basic messaging functionality.
- Extended MAPI allows complete control over the messaging system on the client computer, creation and management of messages, management of the client mailbox, service providers, and so forth.
- Simple MAPI ships with Microsoft Windows as part of Outlook Express/Windows Mail while the full Extended MAPI ships with Office Outlook and Exchange.
- In addition to the Extended MAPI client interface, programming calls can be made indirectly through the Simple MAPI API client interface, through the Common Messaging Calls (CMC) API client interface, or by the object-based CDO Library interface.
- These three methods are easier to use and designed for less complex messaging-enabled and -aware applications. (Simple MAPI and CMC were removed from Exchange 2003.)

- MAPI was originally designed by Microsoft. The company founded its MS Mail team in 1987, but it was not until it acquired Consumers Software in 1991 to obtain Network Courier that it had a messaging product.
- Reworked, it was sold as MS PC Mail (or Microsoft Mail for PC Networking). The basic API to MS PC Mail was known as MAPI version 0 (or MAPI0).
- MAPI uses functions loosely based on the X.400 XAPIA standard.

5.3.4 Telephony API

The CG 6565e is supported by NMS's Natural Access Fusion VoIP service for IP-based enhanced services applications. This development environment offers significant advantages in development time, performance, and most importantly, scalability. Fusion provides a common software development environment that can be used to create IP telephony gateways, IP-enabled enhanced services platforms, and wire- less IP telephony and video gateways.

5.3.5 Internet Messaging

Technologies for sending messages across the Internet. Leading technologies are shown below:

Mail & News

IMAP4 (Internet Message Access Protocol, Version 4):

A still-evolving protocol that allows a client to access and manipulate e-mail messages on a server. IMAP4—designed for disconnected e-mail use—lets you perform such tasks as managing folders remotely, viewing just message subject lines, and selectively downloading messages and attachments based on various criteria (size or author, for example). IMAP4 also allows for shared mail folders.

MIME (Multipurpose Internet Mail Extensions):

- A standard for transmitting nontext e-mail message attachments via SMTP. Most proprietary mail systems must translate any received MIME attachments through an SMTP gateway. NNTP (Network News Transfer Protocol).
- The protocol used by clients to post and retrieve messages to and from news servers, which host discussions. NNTP is also used by news servers to replicate newsgroup discussions.

POP3 (Post Office Protocol, Version 3):

- An established protocol that lets Internet users send and retrieve e-mail to and from mail servers. POP3 provides simple store-and-forward e-mail functionality, compared with the richer IMAP4 specification.

SMTP (Simple Mail Transfer Protocol):

- A standard protocol that defines how e-mail messages are transferred between servers. SMTP defines only ASCII text content, necessitating the MIME standard for non text attachments.

Unencode/undecode:

- Along with MIME, another common method of sending binary e-mail attachments as plain ASCII text.

HTML (Hyper Text Markup Language):

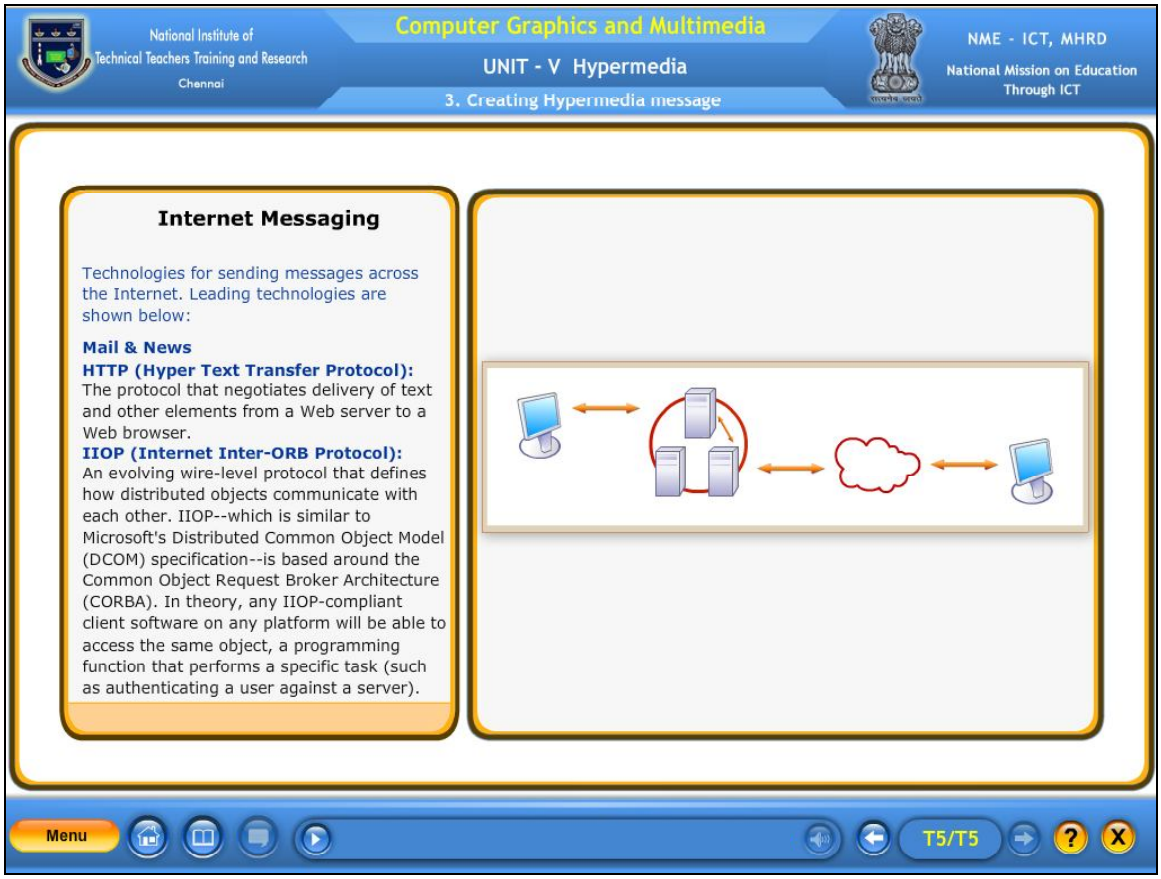
- The simple document-formatting language of the World Wide Web. Netscape and other vendors have begun using HTML as their standard for rich-text formatting across all Internet applications, such as e-mail and newsgroup messages.

HTTP (Hyper Text Transfer Protocol):

- The protocol that negotiates delivery of text and other elements from a Web server to a Web browser.

IIOP (Internet Inter-ORB Protocol):

- An evolving wire-level protocol that defines how distributed objects communicate with each other. IIOP--which is similar to Microsoft's Distributed Common Object Model (DCOM) specification--is based around the Common Object Request Broker Architecture (CORBA). In theory, any IIOP-compliant client software on any platform will be able to access the same object, a programming function that performs a specific task (such as authenticating a user against a server).



LDAP (Lightweight Directory Access Protocol):

- An emerging directory service protocol that uses a subset of the X.500 directory standard to provide a common way to identify user and group information. It can be extended to provide information on other network resources.

Self Test

1. VIM Stands for
   a. Vendor Implement Messaging
   b. Vendor Independent Messaging
   c. Vendor Independent Management
   d. Vector Independent Messaging

(**Answer**: Vendor Independent Messaging)

2. IP statnds for _____ .

(**Answer**: Internet Protocol)

3. The MAPI was originally designed by Sun micro systems.
    a. True
    b. False

(**Answer**: True)

4. An established protocol that lets internet users send and retrieve e-mail to and from mail servers is
    a. SMTP
    b. MIME
    c. IMAP4
    d. POP 3

(**Answer**: POP 3)

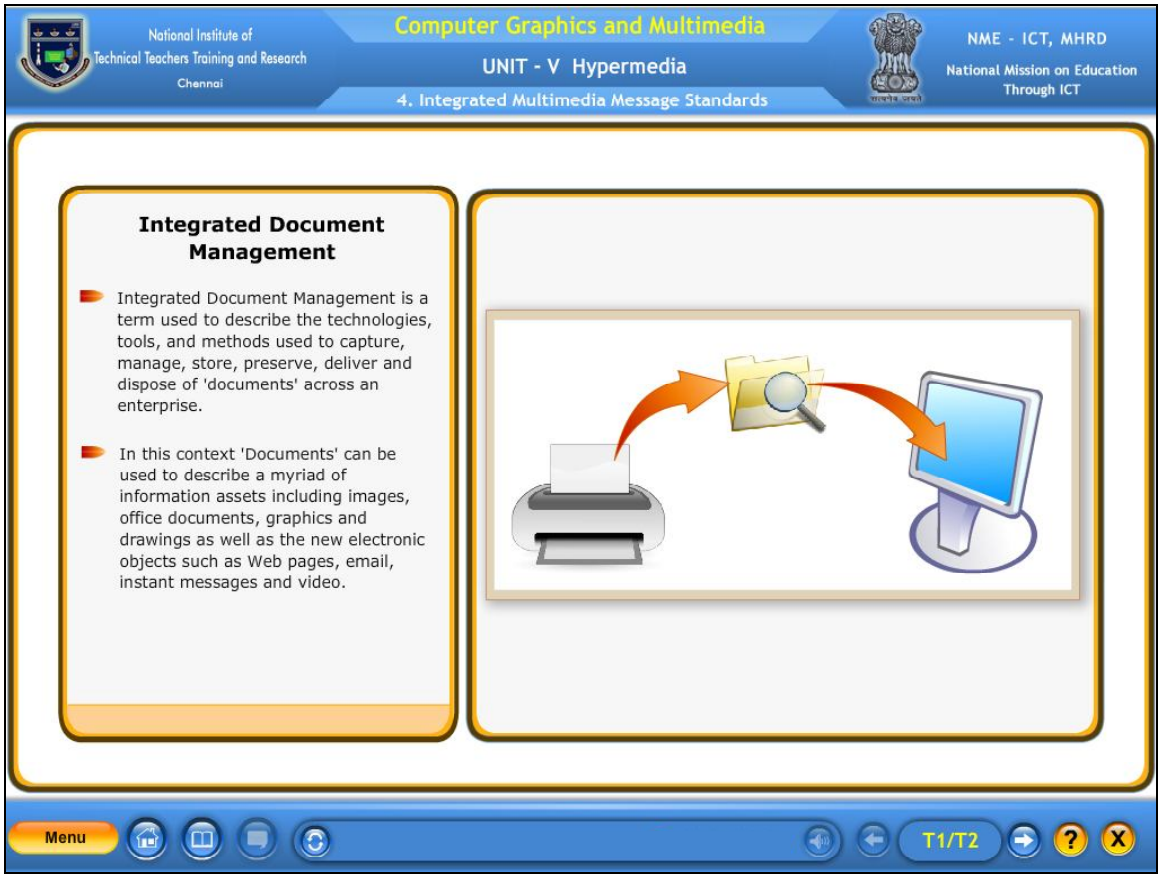
5. SMTP standard protocol defines how e-mail messages are transferred between servers.
    a. True
    b. False

(**Answer**: True)

5.4 Integrated Multimedia Message Standards

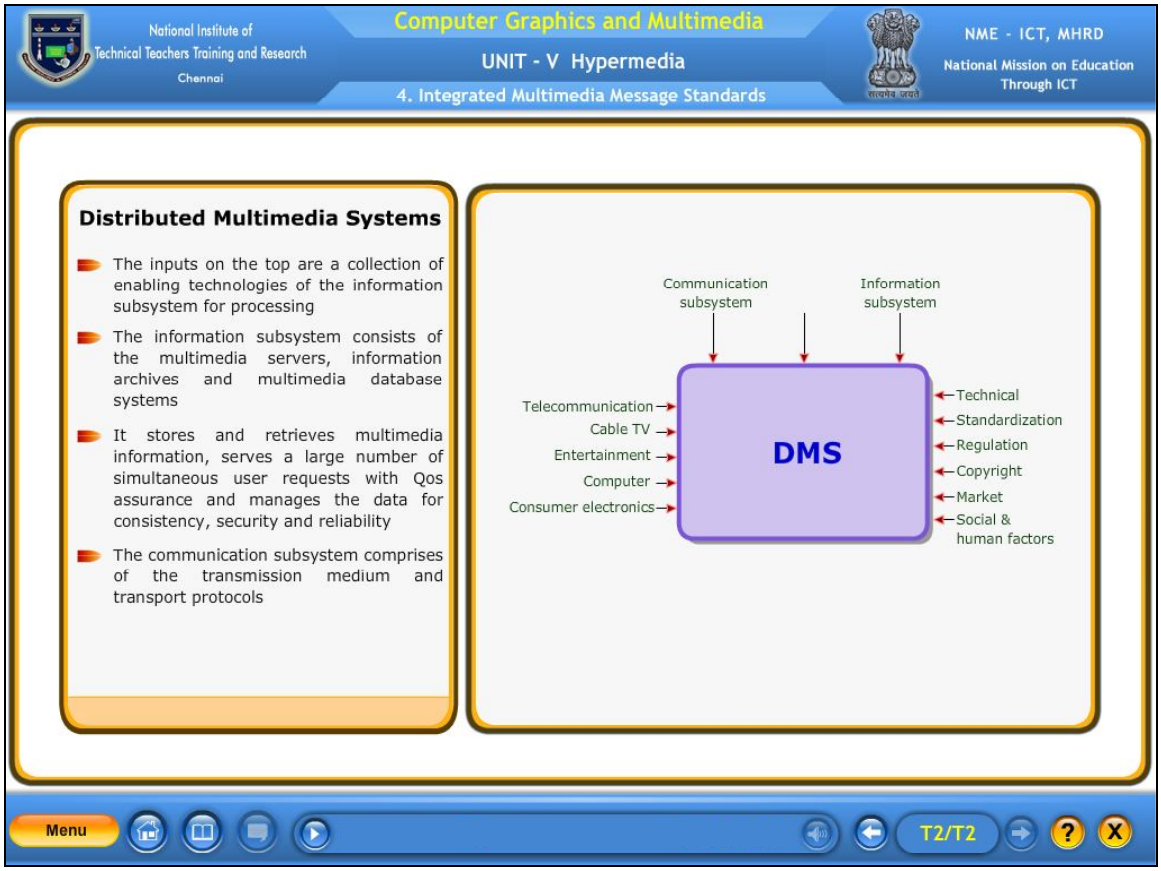
5.4.1 Integrated Document Management

- Integrated Document Management is a term used to describe the technologies, tools, and methods used to capture, manage, store, preserve, deliver and dispose of 'documents' across an enterprise.
- In this context 'Documents' can be used to describe a myriad of information assets including images, office documents, graphics and drawings as well as the new electronic objects such as Web pages, email, instant messages and video.



5.4.2 Distributed Multimedia System

- DMS is an integrated communication computing and information system which enables the processing, management, delivery and presentation of synchronized multimedia information with quality of service assurance.
- Multimedia information may include time-independent media such as text, data and images and time-dependent media such as audio and video. Such a system enhances human communication by exploiting both visual and aural senses.
- It also provides the ultimate flexibility in work, entertainment and education, allowing one to collaborate with remote participants, view movies on demand, access on-time digital libraries from the desktop, and so forth.
- A DMS augments stand-alone multimedia systems with a real-time network which delivers multimedia content timely with acceptable quality.



- Figure 1 depicts a DMS. The inputs of the system consists of the important factors which drive a DMS form concept to reality and the output consists of a wide range of distributed multimedia application.
- The system input can be divided into three orthogonal dimension.
- The inputs on the Left Hand Side are the major contribution form the industries such as computer, telecommunication, cable TV, entertainment and consumer electronics.
- The inputs on the Right Hand Side are the important issues to be considered in terms of technical factors, standardization, regulation, copyright, market and social and human factors.
- The inputs on the top are a collection of enabling technologies of the information subsystem for processing.
- The information subsystem consists of the multimedia servers, information archives and multimedia database systems.
- It stores and retrieves multimedia information, serves a large number of simultaneous user requests with Qos assurance and manages the data for consistency, security and reliability.
- The communication subsystem comprises of the transmission medium and transport protocols.
- It connects the users with distributed multimedia resources and delivers multimedia materials with QoS assurance such as real time delivery for audio and video data and error-free delivery of text data.
- The computing subsystem consists of a multimedia platform (ranging from a high-end graphics workstation to a multimedia PC equipped with CD-ROM drives, speaker, sound card and video card, operating system (OS),

presentation and authoring tool, and multimedia manipulate the multimedia data.

- The outputs of the system can be broadly classified into three different types of multimedia applications:
- Interactive TV (ITV), tele-cooperation and hypermedia applications. ITV allow subscribers to access video programs on demand. Services include home shopping, interactive video games, financial transactions, movie-on-demand, news-on-demand or CD-on-demand.
- Tele-cooperation allows remote participants to join a group activity without time and location restrictions. Services include remote learning, telecommuting, tele-servicing, tele-operation, multimedia email, videophone, desktop conferencing, electronic meeting room, joint editing or group drawing.
- A hypermedia document is a multimedia document with 'links' to other multimedia documents and allows users to browse multimedia information in a non-sequential manner. Services include digital libraries, electronic encyclopedia, multimedia magazine, multimedia document, information kiosk, computer-aided learning tools and World Wide Web surfing.
- The main features of DMS are listed below

1. Technology integration: integrates information, communication and computing systems to form a unified digital processing environment.
2. Multimedia integration: accommodates time-independent data as well as time-dependent data is an integrated environment.
3. Real-time performance: Requires the storage systems, processing system and the transmission system to have real-time performance. Hence, huge storage volume, high I/O rate, high network transmission rate and high CPU processing rate are required.
4. System-wide QoS support: supports diverse QoS requirements on an end-to-end basis, along the data path from the sender through the transport network, to be receiver.
5. Interactivity: Requires duplex communication between the user and the system and allows each user to control the information.
6. Multimedia synchronization support: preserves the playback continuity of media frames within a single continuous media stream and the temporal relationships among multiple related data objects.
7. Standardization support: Allows interoperability despite heterogeneity in the information content, presentation format, user interfaces, network protocols and consumer electronics.

Self Test

1. DMS stands for distributed _____systems.

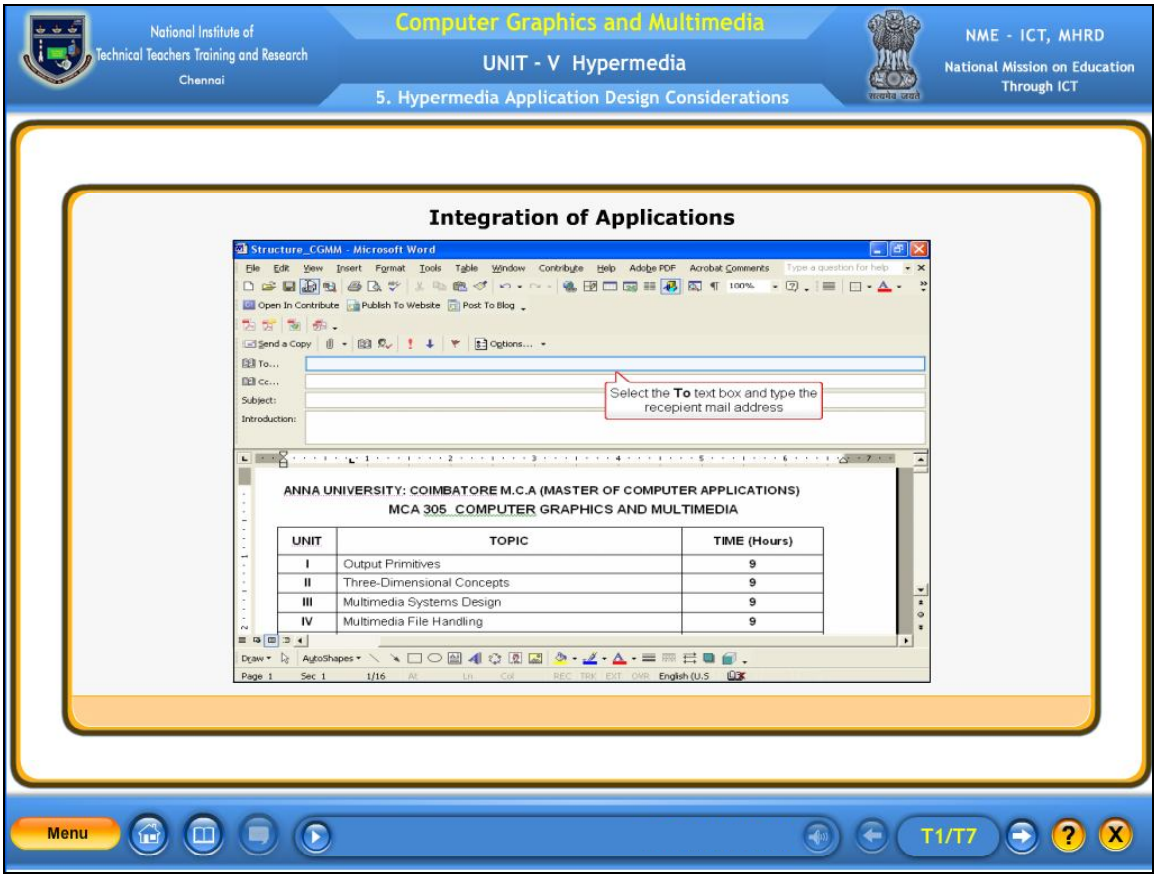
(**Answer**: Multimedia)

2. Integrated Document Management is used to describe technologies, tools and methods and to capture, manage, store and deliver the documents.
   c. True
   d. False

(**Answer**: True)

Hypermedia Application Design Consideration

5.5.1 Integration of applications



- The computer may be called upon to run a diverse set of applications, including some combination of the following:

  - Electronic Mail
  - Word processing or technical publishing
  - Graphics and formal presentation preparation software
  - Spreadsheet or some other decision support software
  - Access to a relation on Object-oriented database

- Customized applications directly related to job function:

  - Billing
  - Portfolio Management
  - Others

- Integration of these applications consists of two major themes

- The appearance of the applications and the ability of the applications to exchange of data

5.5.2 Common UI and Application Integration

- Microsoft windows have standardized the user interface for a large number of applications by providing standardization at the following levels:

    - Overall visual look and feel of the application windows.
    - Menus
    - Dialog Boxes
    - Buttons
    - Help Features
    - Scroll Bars
    - Tool Bars
    - File open and save

- This standardization level makes it easier for the user to interact with applications designed for the Microsoft windows operational environment. Standardization is being provided for object linking and embedding (OLE), Dynamic data exchange (DDE), and the remote Procedure calls (RPC).

5.5.3 Data Exchange Distributed Data Access

- The Microsoft windows clipboard allows exchanging data in any format. It can be used to exchange multimedia objects also. We can cut, and copy a multimedia object in one document and pasting it in another. These documents can be opened under different applications.
- The windows clipboard allows the following formats to be stored:

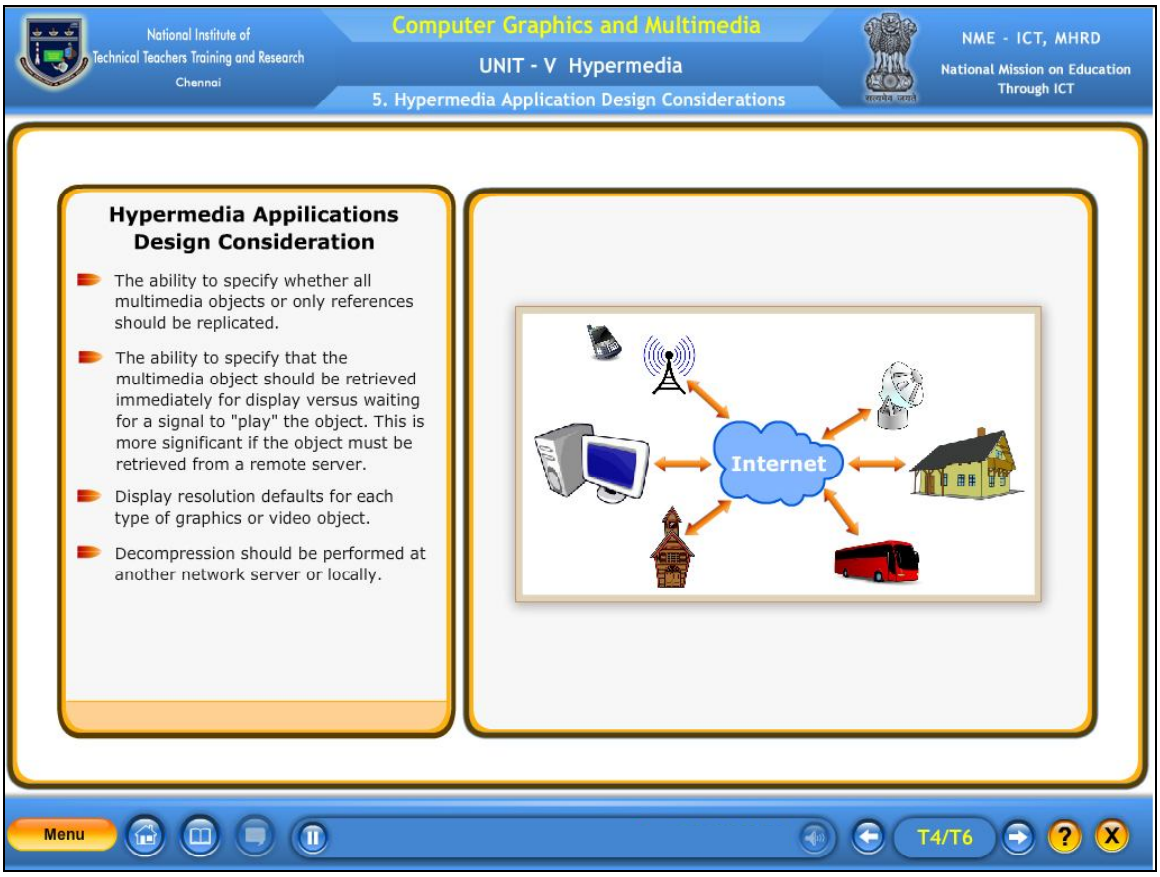
    - Text
    - Bitmap
    - Image
    - Sound
    - Video (AVI Format)

- The data exchange capabilities can be enhanced to make applications more object-oriented, whereby complex objects may be copied to clipboard.
- The receiving applications can specify sub objects it needs from the group stored on the clipboard. The OLE model for application data interchange is being extended to other platforms like Windows NT and UNIX.

5.5.4 Hypermedia Application Design Consideration

- The user interface must be highly intuitive to allow the user to learn the tool quickly and be able to use them effectively.
- In addition, the user interface should be designed to cater to the needs of both experienced and inexperienced user.
- In addition to control of their desktop environments, users also need control of their System environment.
- This control should include some of the following:

- The ability to specify a primary server for each object class within a domain specified by the system administrator. A domain can be viewed as a list of servers to which they have unrestricted access.
- The ability to specify whether all multimedia objects or only references should be replicated.
- The ability to specify that the multimedia object should be retrieved immediately for display versus waiting for a signal to "play" the object. This is more significant if the object must be retrieved from a remote server.
- Display resolution defaults for each type of graphics or video object.
- Decompression should be performed at another network server or locally.



5.5.5 Structuring the Information

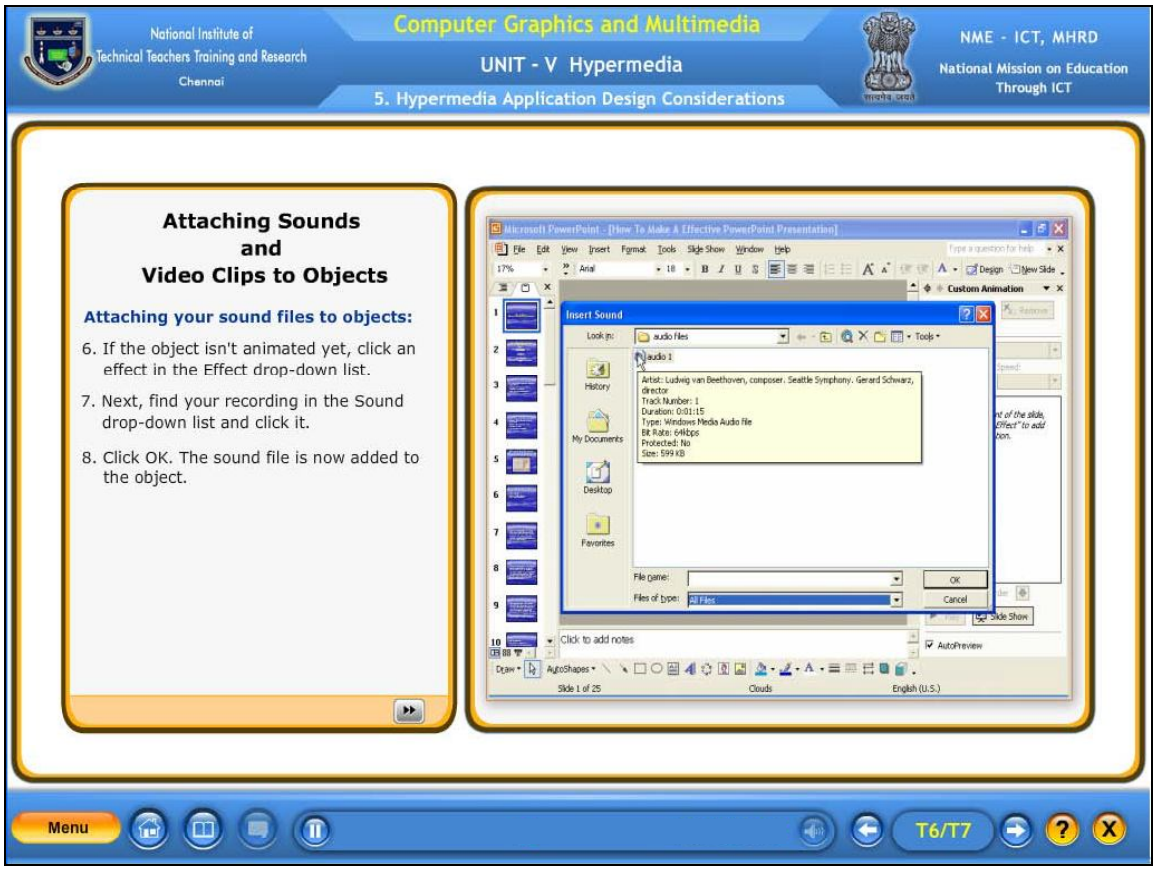
- Multimedia represents the convergence of text, pictures, video and sound into a single form. The power of multimedia and the Internet lies in the way in which information is linked.

- Multimedia and the Internet require a completely new approach to writing. The style of writing that is appropriate for the 'on-line world' is highly optimized and designed to be able to be quickly scanned by readers.
  A good site must be made with a specific purpose in mind and a site with good interactivity and new technology can also be useful for attracting visitors. The site must be attractive and innovative in its design, function in terms of its

purpose, easy to navigate, frequently updated and fast to download.

- When users view a page, they can only view one page at a time. As a result, multimedia users must create a 'mental model of information structure'.

5.5.6 Attaching Sounds and Video clips to Object



Attaching your sound files to objects:

PowerPoint lets you attach your recordings to objects but the objects must be animated before.

you can attach a sound file to them.

1. In Slide View, display the slide you want to add the sound file to.
2. Record your narration.
3. In Slide View, click the object that you want to add the recording to.
4. Click the Slide Show menu, and then click Custom Animation. The Custom animation dialog box will appear.
5. Click the Effects tab.
6. If the object isn't animated yet, click an effect in the Effect drop-down list.
7. Next, find your recording in the Sound drop-down list and click it.
8. Click OK. The sound file is now added to the object.