Lesson Proper for Week 1

Multimedia is the media that uses multiple forms of information content and information processing (e.g. text, audio, graphics, animation, video, interactivity) to inform or entertain the user. Multimedia also refers to the use of electronic media to store and experience multimedia content. Multimedia is similar to traditional mixed media in fine art, but with a broader scope. The term "rich media" is synonymous for interactive multimedia.

 Elements of Multimedia System

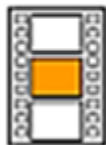VIDEO   ANIMATED GRAPHICS

AUDIO   MAPS

TEXT   PHOTOGRAPHY

If we break the word multimedia into its component parts ,we get multi -meaning more than one ,and media-meaning form of communication.Those types of media include:

Ø . Text

Ø . Audio Sound

Ø . Static Graphics Images

Ø . Animation

Ø . Full-Motion Video

Categories of Multimedia

Multimedia may be broadly divided into **linear** and **non-linear** categories. Linear active content progresses without any navigation control for the viewer such as a cinema presentation. Non-linear content offers user interactivity to control progress as used with a computer game or used in self-paced computer based training. Non-linear content is also known as hypermedia content.

Multimedia presentations can be live or recorded. A recorded presentation may allow interactivity via a navigation system. A live multimedia presentation may allow interactivity via interaction with the presenter or performer.

Features of Multimedia

Multimedia presentations may be viewed in person on stage, projected, transmitted, or played locally with a media player. A broadcast may be a live or recorded multimedia presentation. Broadcasts and recordings can be either analog or digital electronic media technology. Digital online multimedia may be downloaded or streamed. Streaming multimedia may be live or on-demand.

Multimedia games and simulations may be used in a physical environment with special effects, with multiple users in an online network, or locally with an offline computer, game system, or simulator.

Enhanced levels of interactivity are made possible by combining multiple forms of media content but depending on what multimedia content you have it may vary Online multimedia is increasingly becoming object-oriented and data-driven, enabling applications with collaborative end-user innovation and personalization on multiple forms of content over time. Examples of these range from multiple forms of content on web sites like photo galleries with both images (pictures) and title (text) user-updated, to simulations whose co-efficient, events, illustrations, animations or videos are modifiable, allowing the multimedia "experience" to be altered without reprogramming.

Applications of Multimedia

Multimedia finds its application in various areas including, but not limited to, advertisements, art, education, entertainment, engineering, medicine, mathematics, business, scientific research and spatial, temporal applications.

A few application areas of multimedia are listed below:

Creative industries

Creative industries use multimedia for a variety of purposes ranging from fine arts, to entertainment, to commercial art, to journalism, to media and software services provided for any of the industries listed below. An individual multimedia designer may cover the spectrum throughout their career. Request for their skills range from technical, to analytical and to creative.

Commercial

Much of the electronic old and new media utilized by commercial artists is multimedia. Exciting presentations are used to grab and keep attention in advertising. Industrial, business to business, and interoffice communications are often developed by creative services firms for advanced multimedia presentations beyond simple slide shows to sell ideas or liven-up training. Commercial multimedia developers may be hired to design for governmental services and nonprofit services applications as well.

Entertainment and Fine Arts

In addition, multimedia is heavily used in the entertainment industry, especially to develop special effects in movies and animations. Multimedia games are a popular pastime and are software programs available either as CD-ROMs or online. Some video games also use multimedia features.
Multimedia applications that allow users to actively participate instead of just sitting by as passive recipients of information are called *Interactive Multimedia*.

Education

In Education, multimedia is used to produce computer-based training courses (popularly called CBTs) and reference books like encyclopaedia and almanacs. A CBT lets the user go through a series of presentations, text about a particular topic, and associated illustrations in various information formats.
Edutainment is an informal term used to describe combining education with entertainment, especially multimedia entertainment.

Engineering

Software engineers may use multimedia in Computer Simulations for anything from entertainment to training such as military or industrial training. Multimedia for software interfaces are often done as collaboration between creative professionals and software engineers.

Industry

In the Industrial sector, multimedia is used as a way to help present information to shareholders, superiors and coworkers. Multimedia is also helpful for providing employee training, advertising and selling products all over the world via virtually unlimited web-based technologies.

Mathematical and Scientific Research

In Mathematical and Scientific Research, multimedia is mainly used for modeling and simulation. For example, a scientist can look at a molecular model of a particular substance and manipulate it to arrive at a new substance. Representative research can be found in journals such as the Journal of Multimedia.

Medicine

In Medicine, doctors can get trained by looking at a virtual surgery or they can simulate how the human body is affected by diseases spread by viruses and bacteria and then develop techniques to prevent it.

Multimedia in Public Places

In hotels, railway stations, shopping malls, museums, and grocery stores, multimedia will become available at stand-alone terminals or kiosks to provide information and help. Such installation reduce demand on traditional information booths and personnel, add value, and they can work around the clock, even in the middle of the night, when live help is off duty.

A menu screen from a supermarket kiosk that provide services ranging from meal planning to coupons. Hotel kiosk list nearby restaurant, maps of the city, airline schedules, and provide guest services such as automated checkout.

Printers are often attached so users can walk away with a printed copy of the information. Museum kiosk are not only used to guide patrons through the exhibits, but when installed at each exhibit, provide great added depth, allowing visitors to browser though richly detailed information specific to that display.

Convergence of Multimedia (Virtual Reality)

At the convergence of technology and creative invention in multimedia is virtual reality, or VR. Goggles, helmets, special gloves, and bizarre human interfaces attempt to place you "inside" a lifelike experience. Take a step forward, and the view gets closer, turn your head, and the view rotates. Reach out and grab an object; your h moves in front of you. Maybe the object explodes in a 90-decibel crescendo as you

wrap your fingers around it. Or it slips out from your grip, falls to the floor, and hurriedly escapes through a mouse hole at the bottom of the wall.

VR requires terrific computing horsepower to be realistic. In VR, your cyberspace is made up of many thousands of geometric objects plotted in three-dimensional space: the more objects and the more points that describe the objects, the higher resolution and the more realistic your view. As the user moves about, each motion or action requires the computer to recalculate the position, angle size, and shape of all the objects that make up your view, and many thousands of computations must occur as fast as 30 times per second to seem smooth.

On the World Wide Web, standards for transmitting virtual reality worlds or "scenes" in VRML (Virtual Realit Modeling Language) documents (with the file name extension .wrl) have been developed.

Using high-speed dedicated computers, multi-million-dollar flight simulators built by singer, RediFusion, and others have led the way in commercial application of VR.Pilots of F-16s, Boeing 777s, and Rockwell space shuttles have made many dry runs before doing the real thing. At the California Maritime academy and other merchant marine officer training schools, computer-controlled simulators teach the intricate loading and unloading of oil tankers and container ships. Specialized public game arcades have been built recently to offer VR combat and flying experiences for a price. From virtual World Entertainment in walnut Greek, California, and Chicago, for example, BattleTech is a ten-minute interactive video encounter with hostile robots. You compete against others, perhaps your friends, who share coaches in the same containment Bay. The computer keeps score in a fast and sweaty firefight. Similar "attractions" will bring VR to the public, particularly a youthful public, with increasing presence during the 1990s.

The technology and methods for working with three-dimensional images and for animating them are discussed. VR is an extension of multimedia-it uses the basic multimedia elements of imagery, sound, and animation. Because it requires instrumented feedback from a wired-up person, VR is perhaps interactive multimedia at its fullest extension.

Stages of Multimedia Application Development
A Multimedia application is developed in stages as all other software are being developed. In multimedia application development a few stages have to complete before other stages being, and some stages may be skipped or combined with other stages.

Following are the four basic stages of multimedia project development :

1. **Planning and Costing** : This stage of multimedia application is the first stage which begins with an **idea** or need. This idea can be further refined by outlining its messages and objectives. Before starting to develop the multimedia project, it is necessary to plan what writing skills, graphic art, music, video and other multimedia expertise will be required. It is also necessary to estimate the time needed to prepare all elements of multimedia and prepare a **budget** accordingly. After preparing a budget, a **prototype** or proof of concept can be developed.
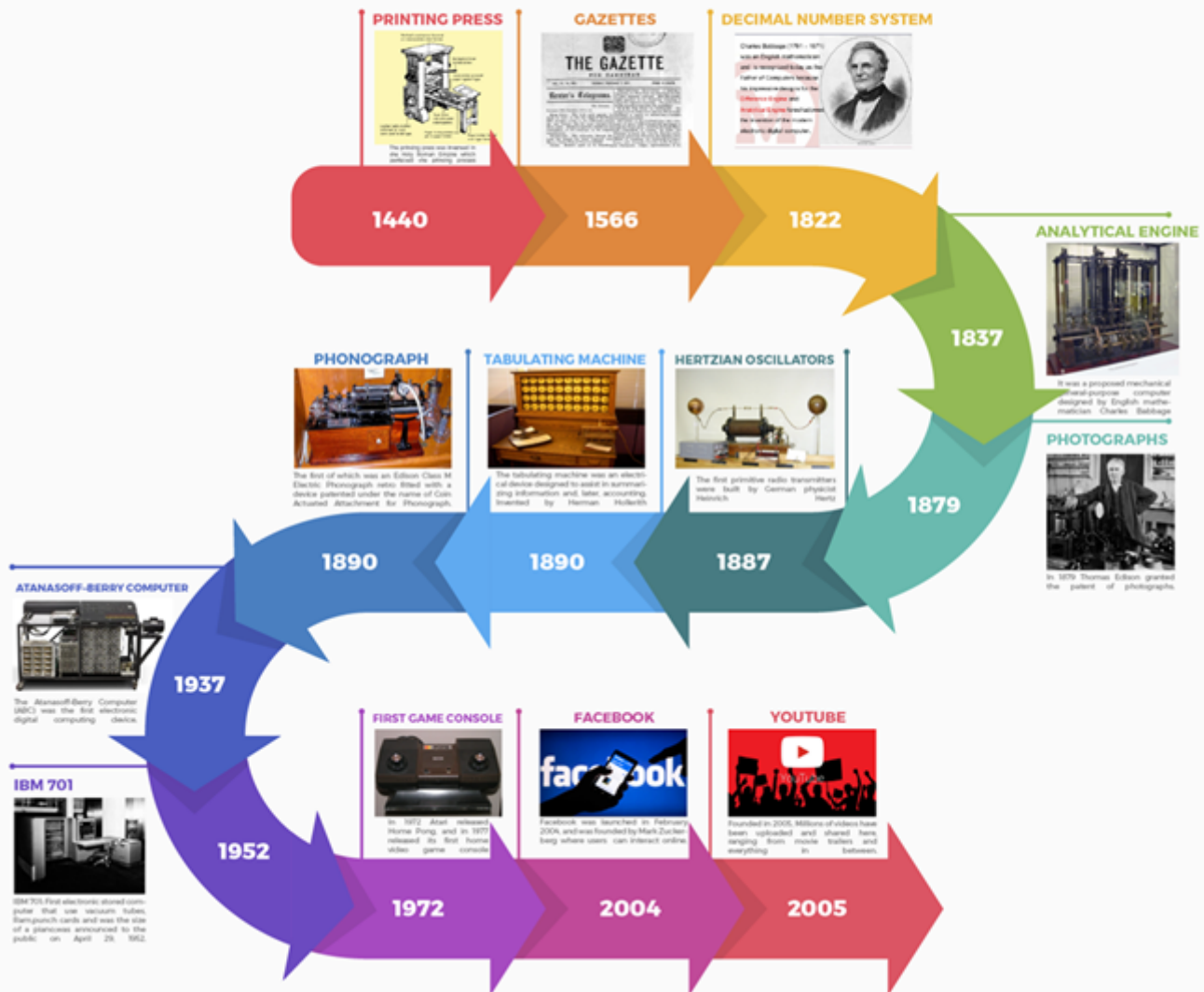
2. **Designing and Producing :** The next stage is to execute each of the planned tasks and create a finished product.

3. **Testing :** Testing a project ensure 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 intended deliver platforms and they meet the needs of the clients.

4. **Delivering :** The final stage of the multimedia application development is to pack the project and deliver the completed project to the end user. This stage has several steps such as implementation, maintenance, shipping and marketing the product. Multimedia once meant a slide projector and a tape recorder being played simultaneously. For instance, 50 years ago, photographic images in slide form were projected on a screen or wall while audio attempted to synchronize with the sequence or played as "background" music

MULTIMEDIA
HISTORY TIMELINE

PRINTING PRESS — 1440

GAZETTES — 1566

DECIMAL NUMBER SYSTEM — 1822

ANALYTICAL ENGINE — 1837
It was a proposed mechanical general-purpose computer designed by English mathematician Charles Babbage.

PHOTOGRAPHS — 1879
In 1879 Thomas Edison granted the patent of photographs.

PHONOGRAPH — 1890
The first of which was an Edison Class M Electric Phonograph retro fitted with a device patented under the name of Coin Actuated Attachment for Phonograph.

TABULATING MACHINE — 1890
The tabulating machine was an electrical device designed to assist in summarizing information and, later, accounting. Invented by Herman Hollerith.

HERTZIAN OSCILLATORS — 1887
The first primitive radio transmitters were built by German physicist Heinrich Hertz.

ATANASOFF-BERRY COMPUTER — 1937
The Atanasoff-Berry Computer (ABC) was the first electronic digital computing device.

IBM 701 — 1952
IBM 701 First electronic stored computer that use vacuum tubes, fram punch cards and was the size of a pianos announced to the public on April 29, 1952.

FIRST GAME CONSOLE — 1972
In 1972 Atari released Home Pong, and in 1977 released its first home video game console.

FACEBOOK — 2004
Facebook was launched in February 2004 and was founded by Mark Zuckerberg where users can interact online.

YOUTUBE — 2005
Founded in 2005. Millions of videos have been uploaded and shared here ranging from movie trailers and everything in between.

In 1967, pop artist Andy Warhol organized "multimedia" events called the Exploding Plastic Inevitable, where he showed films combined with live performances that were illuminated with flashing, colored lights to create a multisensory atmosphere. The technology necessary for joining individual media did not exist at that time. Computers were not accessible to the general public and those that did exist were large, complex, costly, and primarily geared toward scientists and researchers. Today, the term multimedia is associated almost exclusively with the computer, and the components that make up a multimedia program are digital. Various media are brought together to perform in unison on the computer as a single entity, and they are programmed or scripted using authoring software or programming languages. Diverse forms of communication are combined with multimedia to allow for a myriad of outcomes.

Early Multimedia Computing

Up to the 1980s, mainframe computers were the norm as opposed to desktop varieties. These housed vast amounts of data and were primarily used by the military and scientific communities.

In 1975, IBM released the first portable computer with a fixed monitor, keyboard, and data storage. However, it had drawbacks: It required text input, weighed 55 pounds, and cost $20,000, so it was hardly accessible to the masses. In the early 1980s, IBM introduced desktop computers, or personal computers (PCs). The base model had no built-in storage and a text-based screen where input was limited to typing on a keyboard.

As the PC developed, so did its multimedia capabilities. This allowed for regular and widespread use of multimedia and the creation of media elements. At this time, people began using computers for many home and office purposes.

In 1983, Apple Computer, Inc., announced its first desktop computer, which demonstrated an innovative graphical user interface (GUI). It was called the Lisa, and was considered user-friendly because it included a mouse to point and click on interface/screen desktop elements. Other PCs, such as the IBM, did not have these capabilities at the time.

The Lisa was ultimately not successful, so in 1984, Apple released the Macintosh. This was the first commercially successful computer with a GUI that was capable of designing for desktop publishing. This early Mac paved the way for the creation of graphics and page layout design with What You See Is What You

Get (WYSIWYG) technology. This allowed the users to view on their screen an approximate representation of what they would have in their printout, so it was possible to make edits and not need to guess what the final output would look like. Table 1-1 shows the timeline from the early days of PCs to the current multimedia computers.

You might be wondering where the original concept of multimedia derived from. In the early 1900s, Vannevar Bush, an American computer scientist who

TABLE 1-1	Timeline of Early Days of PCs That Led to Multimedia Computers
Year	**Technology and Functionality**
1975–1979	First portable computers and game systems; text input only
1980–1987	First personal computers for word processing, spreadsheets, games, simple slide shows; basic interactivity; CD–ROM specification for releasing multimedia titles; better monitors with higher quality color graphics; increased storage
1988–1992	Faster processors and more memory; sophisticated GUIs; interactive environments grow; beginning of the World Wide Web (the Web) with HTML
1993–2000	CD-quality audio and wide use of CDs and DVDs for data storage; 3D computer animation and virtual reality; enhanced presentation software; sophisticated authoring environments; cross–platform developments; the Web becomes interactive with GUIs; widespread Internet and web access
2001–2011	Extensive Internet use with broadband Ethernet capabilities; all–in–one handheld devices for email, Internet, phone, music, video, and photos; game systems and smart phones with Wi–Fi and 3G access; vast search capabilities (such as Google); real–time videoconferencing and live news broadcasts; video on demand (Netflix, Hulu); TV recording devices; social networking; rich multimedia presentations; high-definition TV with Blu–ray technology; down–loadable music (iTunes, Pandora)

developed patented devices, came up with inventive ideas about ways to link information. He saw the potential of storing information with built-in connec- tions to other data. Bush called his notion associative indexing, which would link information in a way that is more meaningful to the user, rather than the more traditional numerical and alphabetical classifications. He developed the Memex System in 1945, and although it was never implemented, it would have allowed the operator to input notes and drawings using an early method of photocopy- ing. Data was interconnected and could be stored for later recall. His theory led to the development of interlinked hypertext methods, similar to those that are used today.

Douglas Engelbart was another computing pioneer who was way ahead of his time. He is credited with inventing office automation devices such as the mouse, multiple window screens, electronic mail, and videoconferencing during the 1960s. Engelbart was trying to find ways to create a synergy between the user and the computer with an emphasis on human–computer interaction. He worked on collaborative hypermedia systems, which paved the way for current interactive multimedia approaches.

Hypermedia and Hypertext

Hypertext refers to the use of hyperlinks (or simply "links") to present text and static graphics. Many websites are entirely or largely hypertexts. Hypermedia refers to the presentation of video, animation, and audio, which are often referred to as "dynamic" or "time based" content or as "multimedia." Non-Web forms of hypertext and hypermedia include CD-ROM and DVD encyclopedias (such as Microsoft's Encarta), ebooks, and the online help systems we find in software products. It is common for people to use "hypertext" as a general term that includes hypermedia. For example, when researchers talk about "hypertext theory," they refer to theoretical concepts that pertain to both static and multimedia content.

Ted Nelson is a key figure in the evolution of multimedia. As an information technology pioneer who developed the hypertext system in the 1960s, Nelson researched the capability of browsing and searching information using a multi-directional, linked approach. He coined the term hypermedia, which is nonse- quential reading and writing. This coincided with a method he created called Project Xanadu, which was intended to deal with a nonhierarchical approach to storing, presenting, and manipulating data. It demonstrated a form of text that branched and allowed choices to the reader, so users could explore subjects from many different perspectives.

Nelson's explorations opened doors to the multimedia revolution, which ultimately led to the widespread use of the Hypertext Markup Language. HTML is the fundamental web site programming language, or markup language, necessary for web pages to be viewed on the Internet.

The first practical use of hypermedia using hypertext was with a software program called HyperCard, which was introduced by Apple Computer in 1987, as shown in Figure 1-2. It was touted as an easy-to-use "software construction kit," and anyone could be both the creator and user of multimedia. It included buttons, text fields, and menus, and used a metaphor of cards (like individual web pages) that made up stacks (like entire web sites). The programming language that was used with HyperCard was called HyperTalk, and it was appealing to the masses due to its ease of use. HyperCard was used as a presentation program, like PowerPoint, as well as for designing games and learning tools. This paved the way for more sophisticated software programs that allowed the amateur to create and develop multimedia

projects.
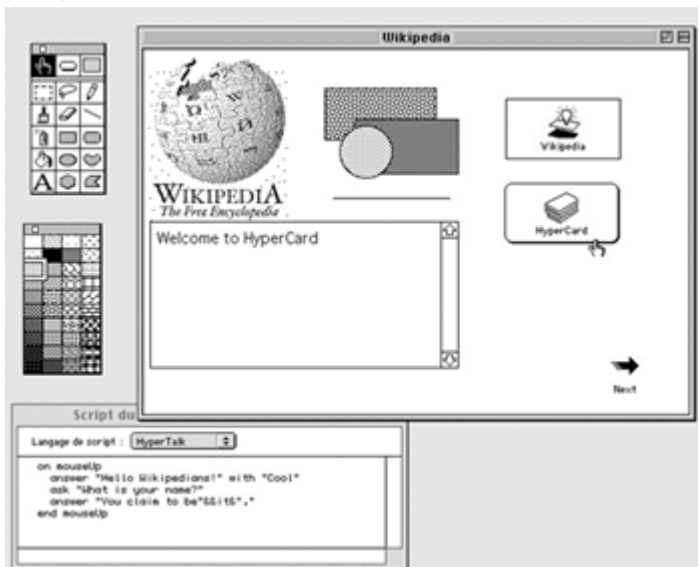
In the early 1990s, there was a surge of multimedia programming, referred to as edutainment, that focused on interactive educational projects and books designed for children. CD titles were being produced at a rapid pace, but they were not tested well enough either for significance of the content or techno- logical feasibility. This trend never turned into the revolution that was promised, as it was riddled with hardware and software compatibility problems. It also faced consumer resistance due to cost and unfamiliarity with the use and benefits of such products.

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                📄 Preliminary Activity for Week 1

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ⓘ 2nd Semester Enrollment

🧩 Activities

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