FUNDAMENTAL CONCEPT OF MULTIMEDIA

Multimedia is the field concerned with the computer-controlled integration of text, graphics, drawings, still and moving images (Video), animation, audio, and any other media where every type of information can be represented, stored, transmitted and processed digitally

Multimedia has become a huge force in human-being culture, industry and education. Practically any type of information we receive can be categorized as multimedia, from television, to magazines, to web pages, to movies, multimedia is a tremendous force in both informing the public and entertaining us. Advertising is perhaps one of the biggest industry's that use multimedia to send their message to the masses. Multimedia in Education has been extremely effective in teaching individuals a wide range of subjects. The human brain learns using many senses such as sight and hearing. While a lecture can be extremely informative, a lecture that integrates pictures or video images can help an individual learn and retain information much more effectively. As technology progresses, so will multimedia. Today, there are plenty of new media technologies being used to create the complete multimedia experience. For instance, virtual reality integrates the sense of touch with video and audio media to immerse an individual into a virtual world. Other media technologies being developed include the sense of smell that can be transmitted via the Internet from one individual to another. Today's video games include bio feedback.

Types of Multimedia

- **Text** - The form in which the text can be stored can vary greatly. In addition to ASCII based files, text is typically stored in processor files, spread sheets, databases and **annotations** on more general multimedia

objects. With availability and proliferation of GUIs, text fonts the job of storing text is becoming complex allowing special effects(color, shades..). **TEXT, START**

- **Graphics** - There is great variance in the quality and size of storage (**Image file formats**) for still images (**Bitmap - gif**, **jpg**, **bmp**) (**Vector - svg**, **pdf**, **swf**,**ps**). **Digitalized images** are sequence of pixels that represents a region in the user's graphical display.
- **Audio** - An increasingly popular data type (**audio file format**) being integrated in most of applications is Audio. Its quite space intensive. One minute of sound can take up to 2-3 Mbs of space. Several techniques are used to compress it in suitable format.
- **Animation** - It involves the appearance of motion caused by displaying still images one after another. Often, animation is used for entertainment purposes. In addition to its use for entertainment, animation is considered a form of art. It is often displayed and celebrated in film festivals throughout the world. Also used for educational purposes. **TUTORIAL, DOWNLOADS, ANIMATION MAKER SOFTWARE**
- **Video** - One on the most space consuming multimedia data type is digitalized video. The digitalized videos are stored as sequence of frames. Depending upon its resolution and size a single frame can consume upto 1 MB. Also to have realistic video playback, the transmission, compression, and decompression of digitalized require continuous transfer rate.
- **Graphic Graphics (Objects)** - These consists of special data structures used to define **2D** & **3D** shapes through which we can define **multimedia objects**. These include various formats used by image, video editing applications.

USE OF MULTIMEDIA IN DIFFERENT FIELDS

In this present epoch of communication, everything needs to be advertised, whether it is news or any piece of information. With the opening of more and more TV channels, ad agencies, event management companies, the requirement of media has really increased.

Multimedia can be anything and everything which you watch and listen in a form of text, photograph, audio, video and much more. In most of the industries, whether hospitality, aviation, banking, insurance, science and technology etc, it is being used in almost every field, either for publishing something or for some other purpose.

Another identical term used for multimedia is 'rich media'. Creating such kind of content is a challenge, but with modern means of technology and the expertise of software valuable resources can be created. The multimedia software that are available in market helps in developing content that is creative, stimulating and eye-catching.

Importance of Multimedia in Various Fields

Multimedia is everywhere whether you are at a railway station looking at the schedule screens or watching your Television or using your mobile. It has

changed everything from manufacturing to the advertising and education to healthcare industry. It has revolutionized everything everywhere not only in India but also the entire world.

1. Advertising

Advertising has changed a lot over the past couple of decades, and this is mainly due to the increased use of the internet in business. Multimedia plays a great and a vital role in the field of advertising. As whatever it is whether print or electronic advertisement, they first are prepared on the computer by using professionals' software's and then it is brought in front of the target audiences.

Some of different types of advertising are:

- Print advertising
- Radio (audio) advertising
- Television (video) advertising
- Digital advertising
    - Display Ads
    - Remarketing
    - Video
    - Social
    - Search
- Mobile advertising

2. Education

In the area of education too, the multimedia has a great importance. Talking particularly about the schools, their usage has a significant role to play for children also. It is broadly used in the field of education and training. We used audio for imparting education even in traditional method, where charts, models etc. were used.

Nowadays the classroom need is not limited to that traditional method rather it needs audio and visual media. With the use of multimedia everything can be

integrated into one system. As an education aid the PC contains a high-quality display with mic option. This all has promoted the development of a wide range of computer-based training.

3. Mass Media

It is used in the field of mass media i.e. journalism, in various magazines and newspapers that are published periodically. The use of multimedia plays a vital role in a publishing house as there are many works of newspaper designing and other stuff also.

Nowadays it's not only the text that we can see in the newspaper, but we can also see photographs in newspaper, this not only makes newspaper a perfect example but will also explain the worthiness of hypermedia.

4. Gaming Industry

One of the most exciting applications of multimedia is games. Nowadays the live internet is used to play gaming with multiple players has become popular.

In fact, the first application of multimedia system was in the field of entertainment and that too in the video game industry. The integrated audio and video effects make various types of games more entertaining.

5. Science and Technology

Multimedia had a wide application in the field of science and technology. It is capable of transferring audio, sending message and formatted multimedia documents. At the same time the it also helps in live interaction through audio messages and it is only possible with the hypermedia. It reduces the time and cost can be arranged at any moment even in emergencies.

At the same time, it is useful for surgeons as they can use images created from imaging scans of human body to practice complicated procedures such as brain removal and reconstructive surgery. The plans can be made in a better way to reduce the costs and complications.

6. Pre-Production

Pre-Production comprises of everything you do before you start recording of audio or video. This phase of your project is extremely important. Everything you do in pre-production will save time and aggravation during production and post-production. The techniques shown will include: how to design storyboards, including how to show correct camera angles for the scene, writing your story, and how to use video transitions can be done with the help of multimedia.

7. Post Production

It is the final step of production involves editing scenes, adding various transition effects, addition of voice to characters, background score, dubbing and much more can be done using multimedia technologies.

8. Fine Arts

In fine arts, there are multimedia artists, who blend techniques using different media that in some way incorporates interaction with the viewer. One of the famous artist is Peter Greenaway who is blending cinema with opera with the help of all sorts of digital media.

9. Engineering

Software engineers often use multimedia in computer simulations for anything such as military or industrial training. It is also used for software interfaces which are done as collaboration between creative professionals and software engineers.

10. Research

In the area of mathematical and scientific research, multimedia is primarily used for modelling and simulation. For example, looking at a molecular model by a scientist of a particular substance and manipulate it to arrive at a new substance.

CAREER OPTIONS AND SALARY PACKAGE IN MULTIMEDIA

After completion a professional course from a reputed institute like ADMEC MULTIMEDIA, one can opt for different gratifying professions, such as graphic designer, layout artist, image editor, template artist, web designer & developer, audio/video editor, game designer, 3D animator and presentation artist, in various industries. Such professionals are one of the highly paid professionals in the world. Salary packages varies profile to profile and location to location, so I will give you an idea about the salary package in Delhi and India only.

Multimedia professionals can be divided in 3 parts:

1. Fresher with no designing background – Salary Package (15,000 – 30,000)
2. Fresher with designing background – Salary Package (25,000 - 40,000)
3. Experienced Multimedia Professional with 1 – 3 years of experience – Salary Package (35,000-70,000)

Note: Above Salary Range is in Indian Rupees and an estimation for India and specially for Delhi and its nearby areas only.
Multimedia graduates find employment with:

- Games development companies
- Interface and Graphic Design firms
- Educational institutions
- Film production companies
- Website development companies
- TV networks
- Online magazines & newspapers
- Marketing companies
- Public relations companies
- Advertising companies
- Self-employment

- IT companies
- Music video organizations

Q. What essential hardware and software is required for Multimedia development and delivery?

For producing multimedia you need hardware, software and creativity.

MULTIMEDIA HARDWARE REQUIREMENTS

CPU

Central Processing Unit (CPU) is an essential part in any computer. It is considered as the brain of computer, where processing and synchronization of all activities takes place. The efficiency of a computer is judged by the speed of the CPU in processing of data. For a multimedia computer a Pentium processor is preferred because of higher efficiency.

Monitor

The monitor is used to see the computer output. Generally, it displays 25 rows and 80 columns of text. The text or graphics in a monitor is created as a result of an arrangement of tiny dots, called pixels. Resolution is the amount of details the monitor can render. Resolution is defined in terms of horizontal and vertical pixel (picture elements) displayed on the screen.

Video Grabbing Card

We need to convert the analog video signal to digital signal for processing in a computer. Normal computer will not be able to do it alone. It requires special equipment called video grabbing card and software to this conversion process.

This card translates the analog signal it receives from conventional sources such as a VCR or a video camera, and converts them into digital format.

Sound Card

Today's computers are capable of creating the professional multimedia needs. Not only you can use computer to compose your own music, but it can also be used for recognition of speech and synthesis. It can even read back the entire document for you. But before all this happens, we need to convert the conventional sound signal to computer understandable digital signals. This is done using a special component added to the system called sound card.

CD-Rom

CD-ROM is a magnetic disk of 4.7 inches diameter and it can contain data up to 680 Megabytes. It has become a standard by itself basically for its massive storage capacity, faster data transfer rate. To access CD-ROM a very special d1rive is required and it is known as CD-ROM drive.

MULTIMEDIA SOFTWARE REQUIREMENTS

For the creation of multimedia on the PC there are hundreds of software packages that are available from manufacturers all over the world.

These software packages can cost anything from being absolutely free (normally this software is called freeware or shareware) to anything upwards of £500.

Here is a summary of just a few of these programs.

Adobe CS4

Adobe CS4 is a collection of graphic design, video editing, and web development applications made by Adobe Systems many of which are the industry standard that includes

Adobe Dreamweaver

Although a hybrid WYSIWYG and code-based web design and development application, Dreamweaver's WYSIWYG mode can hide the HTML code details of pages from the user, making it possible for non-coders to create web pages and sites. WYSIWYG (What You See Is What You Get) web development software that allows users to create websites without using Html, everything can be done visually.

Adobe Fireworks

A graphics package that allows users to create bitmap and vector graphics editor with features such as: slices, the ability to add hotspots etc.) for rapidly creating website prototypes and application interfaces.

Gimp

Is an alternative to Photoshop and cheaper but not quite as good.

Google Sketchup

SketchUp is a 3D modeling program designed for architects, civil engineers, filmmakers, game developers, and related professions.

Microsoft Frontpage

As a WYSIWYG editor, FrontPage is designed to hide the details of pages' HTML code from the user, making it possible for novices to easily create web pages and sites.

Apple Quicktime

QuickTime is an extensible proprietary multimedia framework developed by Apple, capable of handling various formats of digital video, 3D models, sound, text, animation, music, panoramic images, and interactivity.

Photoshop Pro

Adobe Photoshop, or simply Photoshop, is a graphics editing programdeveloped and published by Adobe Systems. It is the current market leader for commercial bitmap and image manipulation software, and is the flagship product of Adobe Systems. It has been described as "an industry standard for graphics professionals"

Microsoft Powerpoint

Powerpoint Presentations are generally made up of slides may contain text, graphics, movies, and other objects, which may be arranged freely on the slide.

Adobe Flash Player

Adobe Flash (formerly Macromedia Flash) is a multimedia platformthat is popular for adding animation and interactivity to web pages. Originally acquired by Macromedia, Flash was introduced in 1996, and is currently developed and distributed by Adobe Systems.

Flash is commonly used to create animation, advertisements, and various web page Flash components, to integrate video into web pages, and more recently, to develop rich Internet applications.

Adobe Shockwave : Adobe Shockwave (formerly Macromedia Shockwave) is a multimedia player program, first developed by Macromedia, acquired

by Adobe Systems in 2005. It allows Adobe Director applications to be published on the Internet and viewed in a web browser on any computer which has the Shockwave plug-in installed.