

# BIM

Semester: I

## FOUNDATION OF INFORMATION TECHNOLOGY

### Multimedia and the web



### REFERENCE NOTE

#### Unit-7: Multimedia and the web

##### Multimedia:

The term multimedia is simply a combination of multiple forms of media which includes text, graphics, audio, video, animation, etc. Multimedia is a technology of presentation information in more attractive interesting interactive, understandable manner. Multimedia uses more than one media like text, audio, animation, image, and video to present information.

##### Component of Multimedia

Multimedia is media and other contents that uses of combinations of different content forms. The term can be used as a medium of having multiple contents.

- i. **Text:** Text is the most widely used and flexible means of presenting information on paper, display unit or in multimedia for conveying ideas and thoughts.
- ii. **Graphics:** A picture is a worth of thousands words. An image, figure, picture or drawing can be considered as graphics.
- iii. **Audio:** Audio is the one of the most important components in multimedia presentation.
- iv. **Video:** The main component of the presentation is video. It is the sequential representation of figure in systematic order. Video contains images, figures, graphics, animations and other components to represents on particular topic.

- v. **Animation:** Animation is the displaying of images in a sequence. Animation gives artwork or model in order to create an illusion of movement

### **Image and Graphics**

A picture can tell more than a thousand words. Image refers to graphics, charts or pictures. Image is a powerful, most attractive and key element of multimedia for expressing information to the audience.

### **Types of Image Formats**

1. JPEG (or JPG) - Joint Photographic Experts Group
2. PNG - Portable Network Graphics
3. GIF - Graphics Interchange Format
4. TIFF - Tagged Image File
5. PSD - Photoshop Document
6. PDF - Portable Document Format
7. EPS - Encapsulated Postscript
8. AI - Adobe Illustrator Document
9. INDD - Adobe Indesign Document
10. RAW - Raw Image Formats

#### **1. JPEG (or JPG) - Joint Photographic Experts Group**

JPEGs might be the most common file type you run across on the web, and more than likely the kind of image that is in your company's MS Word version of its letterhead. JPEGs are known for their "lossy" compression, meaning that the quality of the image decreases as the file size decreases.



You can use JPEGs for projects on the web, in Microsoft Office documents, or for projects that require printing at a high resolution. Paying attention to the resolution and file size with JPEGs is essential in order to produce a nice-looking project.

#### **JPG vs JPEG**

There is no difference between the .jpg and .jpeg filename extensions. Regardless of how you name your file, it is still the same format and will behave the same way.

The only reason that the two extensions exist for the same format is because .jpeg was shortened to .jpg to accommodate the three-character limit in early versions of Windows. While there is no such requirement today, .jpg remains the standard and default on many image software programs.

#### **2. PNG - Portable Network Graphics**

PNGs are amazing for interactive documents such as web pages but are not suitable for print. While PNGs are "lossless," meaning you can edit them and not lose quality, they are still low resolution.



The reason PNGs are used in most web projects is that you can save your image with more colors on a transparent background. This makes for a much sharper, web-quality image.

### **3. GIF - Graphics Interchange Format**

GIFs are most common in their animated form, which are all the rage on Tumblr pages and in banner ads. It seems like every day we see pop culture GIF references from [Giphy](#) in the comments of social media posts. In their more basic form, GIFs are formed from up to 256 colors in the RGB colorspace. Due to the limited number of colors, the file size is drastically reduced.



This is a common file type for web projects where an image needs to load very quickly, as opposed to one that needs to retain a higher level of quality.

### **4. TIFF - Tagged Image File**

A TIF is a large raster file that doesn't lose quality. This file type is known for using "lossless compression," meaning the original image data is maintained regardless of how often you might copy, re-save, or compress the original file.



Despite TIFF images' ability to recover their quality after manipulation, you should avoid using this file type on the web. Since it can take forever to load, it'll severely impact website performance. TIFF files are also commonly used when saving photographs for print.

### **5. PSD - Photoshop Document**

PSDs are files that are created and saved in Adobe Photoshop, the most popular graphics editing software ever. This type of file contains "layers" that make modifying the image much easier to handle. This is also the program that generates the raster file types mentioned above.



The largest disadvantage to PSDs is that Photoshop works with raster images as opposed to vector images.

### **6. PDF - Portable Document Format**

PDFs were invented by Adobe with the goal of capturing and reviewing rich information from any application, on any computer, with anyone, anywhere. I'd say they've been pretty successful so far.



If a designer saves your vector logo in PDF format, you can view it without any design editing software (as long as you have downloaded the free Acrobat Reader software), and they have the ability to use this file to make further manipulations. This is by far the best universal tool for sharing graphics.

### **7. EPS - Encapsulated Postscript**

EPS is a file in vector format that has been designed to produce high-resolution graphics for print. Almost any kind of design software can create an EPS.



The EPS extension is more of a universal file type (much like the PDF) that can be used to open vector-based artwork in any design editor, not just the more common Adobe products. This safeguards file transfers to designers that are not yet utilizing Adobe products, but may be using Corel Draw or Quark.

### **8. AI - Adobe Illustrator Document**

AI is, by far, the image format most preferred by designers and the most reliable type of file format for using images in all types of projects from web to print, etc.



Adobe Illustrator is the industry standard for creating artwork from scratch and therefore more than likely the program in which your logo was originally rendered. Illustrator produces vector artwork, the easiest type of file to manipulate. It can also create all of the aforementioned file types. Pretty cool stuff! It is by far the best tool in any designer's arsenal.

### **9. INDD - Adobe InDesign Document**

INDDs (InDesign Document) are files that are created and saved in Adobe InDesign. InDesign is commonly used to create larger publications, such as newspapers, magazines and eBooks.



Files from both Adobe Photoshop and Illustrator can be combined in InDesign to produce content rich designs that feature advanced typography, embedded graphics, page content, formatting information and other sophisticated layout-related options.

### **10. RAW - Raw Image Formats**

A RAW image is the least-processed image type on this list -- it's often the first format a picture inherits when it's created. When you snap a photo with your camera, it's saved immediately in a raw file format. Only when you upload your media to a new device and edit it using image software is it saved using one of the image extensions explained above.



RAW images are valuable because they capture every element of a photo without processing and losing small visual details. Eventually, however, you'll want to package them into a raster or vector file type so they can be transferred and resized for various purposes.

## **Audio**

The information can be presented in the form of audio. It may be speech, music or background sound which makes information more interesting and realistic. Mostly, the sounds are accompanied by visuals for demonstrating realism and effectiveness. Radio broadcasts, online audio files, video games, movies, advertisement is the main tools for convey information. There are different formats of audio such as mp3, WAVE, MIDI, WMA etc. The web applications having audio are structured using a plugin media player. Most of the presentation included audio as background sound for making the presentation session more attractive, interesting and effective. In general, audio is used exclusively as a complementary media for video and animation. Sound effects help to make the presentation more memorable while listening to the main points of the information spoken helps the audience to focus.

## **Video:**

Video is the technology of capturing, recording, processing and broadcasting and display of moving picture. It can be defined as picture of motion. With technology, pictures are displayed sequentially over a reasonable time frame so it looks like the picture is moving. It is the best method to demonstrate information to the viewer within a limited time. The video gives a clear concept in any presentation. It also increases the retention of information for a long time in the memory. It can be used as a piece of evidence for any type of research, project and work for better performance. The real-life event can be captured for memory by using a video recording device such as a digital camera, smart phone and tabs or digital video recorder. Nowadays, video becomes a great's resource of information and an inseparable part of multimedia. For example, television and channels, documentary, movies and theater, YouTube and video. The different types of video formats are used such as MP4, MPEG, AVI, Flash, WMV and quick time.

## **Animation**

The simulation of movement created by displaying a series of pictures is animation. It is the movement of created pictures by displaying them one after another. The things, objects, characters or imagination which is not possible in real life are presented with the help of animation. Computer animation is a visual digital display technology that processes

the moving images on the screen. Animation means giving life to any object in computer graphics. It makes impossible things possible. It has the power of injecting energy and emotions into the most seemingly inanimate objects. It becomes an important component of multimedia. It is used in a lot of movies, films and games, education, e-commerce, computer art, training etc. It is a big part of the entertainment area as most of the sets and background are all build-up through VFX and animation.

### ***Application or use of multimedia***

The application of multimedia has the broad range of applied fields.

- |  |                                     |
|--|-------------------------------------|
| 1) Multimedia in entertainment.          | 3) Multimedia in software training. |
| 2) Multimedia in education and training. | 4) Multimedia on the webpages.      |
| 5) Communication                         | 6) Business                         |
| 7) Engineering                           | 8) Industry                         |
| 9) Scientific Research                   | 10) Medicine/ Health                |
| 11) Virtual Reality                      |                                     |

### **Advantages and Disadvantages of Multimedia**

#### **Advantages of Multimedia**

- a. It increases learning effectiveness.
- b. It is more appealing over traditional, lecture-based learning methods.
- c. It offers significant potential in improving personal communications, education and training efforts.
- d. It reduces training costs.
- e. It is easy to use.
- f. It tailors information to the individual.
- g. It provides high-quality video images and audio.

#### **Disadvantages of Multimedia**

- a. Multimedia is expensive.
- b. Multimedia needs well trained manpower to create and use it.
- c. Multimedia files are too large so, it is time consuming to transfer across the internet and intranet.
- d. It requires special hardware.
- e. It is not always compatible.

#### **Virtual reality:**

- Virtual reality is a technology that allows people to enter and interact with three dimensional computer graphics world.
- Virtual reality is currently used in applications such as aircraft pilot training, medical rehabilitation, training for surgical procedures, engineering and scientific visualization, manufacturing design and computer games.

#### ***Abbreviations and its full form***

**WMA:** Windows Media Audio

**WAV:** Windows Audio Video

**MIDI:** Musical Instrument Digital Interface

**WMV:** Windows Media Video

**MPEG:** Motion Picture Experts Group/Moving Picture Expert Group/Moving

**AVI:** Audio Video Interleave

**FLV:** Flash Live Video

**SWF:** Small Web Format

## **Web based Multimedia**

Web-based multimedia refers to the use of multimedia on web pages. The multimedia sites are interactive. It contains elements that users interact with and it displays information as requested by the web page visitor.

Multimedia is now an integral component of the Web, mainly after the development of faster computers and broadband Internet connections. It is also a support tool for the users who are physically-challenged.

### **Some of applications of Web based Multimedia are:**

**1. Information delivery:** The use of multimedia in the web has made information delivery more effective. Photos of the product, video clips and podcasts, and user's manuals are used to convey information. It has also become an important component in Web-based training (WBT).

**2. E-Commerce:** Online catalogs, sample clips of movie and music, Virtual reality (VR) and augmented reality based systems to display the details of product and service are being commonly used at present.

**3. Entertainment:** Online games, TV, and movies are available through web pages.

**4. Social Media and Virtual Worlds:** Photo, audio and video are the common components on many social networking sites. It is also being used to create Virtual World.

### **Future of Web Based Multimedia**

In recent years, both the content and the amount of time people spend viewing multimedia content on the web have increased significantly. With the development of multimedia enabled mobile computing devices and broadband Internet services, these numbers are expected to rise exponentially in the coming days.

In the coming years, the majority of multimedia Internet traffic will be transmitted wirelessly. Quality issues will become increasingly important as user expectations rise. To address these and other demands from an application perspective, intelligent apps and APIs must reduce complexities for developers and designers. Multimedia standards must also allow for basic interoperability. Some of the technologies and considerations about the future of multimedia in the web are:

- Media formats such as high-definition (HD) and ultra-high-definition (UHD), high frame rate (HFR), and high dynamic range (HDR)
- Media processing within the cloud
- Architectures, specifically with respect to content-centric networking
- Devices and interaction possibilities
- Augmented and Virtual reality
- Quality of experience (QoE) and
- Security and privacy

## **Multimedia in Business**

The multimedia technology along with communication technology has opened the door for the business to reach the global market. It has completely changed the traditional concept of the business activities by defining the new means of marketing, advertisement, sales and communication with the customers. Multimedia like mobile marketing, live casting and podcasting, photos, video and file sharing can spread the word about the business and helps to build brand awareness in a very unique and powerful way.

The recent development and the popularity of multimedia devices and broadband Internet services has also supported the business activities.

Multimedia can be used in many applications in a business. Some of them are

- Multimedia based marketing, advertising and product demos
- Multimedia in the web has enabled to reach the global market.
- Presentation during training, meeting, and presenting about product and projects
- Multimedia enables entertainment business like online TV, movies, Video on demand, virtual games.