Multimedia

What is the difference between Hypertext and Hypermedia?

• Hypertext is the electronic text format where, content is interconnected using hyperlinks, while hypermedia refers to media such as text, audio, graphics and video interconnected using hyperlinks.
• Hypertext is a subset of hypermedia.
• HTML or XML like language has to be used for any hypermedia implementation, including hypertext too.

Difference between MIDI and digital audio

	MIDI	**Digital Audio**
Definition	A MIDI file is a software for representing musical information in a digital format.	A digital audio refers to the reproduction and transmission of sound stored in a digital format.
Format type	Compressed	Compressed
Advantages	• Files are tiny, often less than 10K. • Download from a web page in no time. • Fit easily on a floppy desk. • The files are any time ideal.	• They reproduce the exact sound files. • It reproduce better than CD quality.
Disadvantages	They sound little different from the original sounds.	• They take up 10MB or more per minute of sound. • Even with high-speed internet connections, a simple audio file can take several minutes to download.

		• When combined with video, the files can cause problems.
Contain	Do not contain a recording of sound	Contain a recording of sound
Storage	No actual sound stored in MIDI file	Actual sound stored in digital audio file

JPEG and MPEG

Both, JPEG and MPEG are two different types of compressing formats. The main difference between the two is that JPEG is mainly used for image compression, while MPEG has various standards for audio and video compression.

JPEG stands for Joint Photographic Expert Group. The file name for a JPEG image is .jpg or .jpeg. JPEG is the most commonly used format for photographs. It is specifically good for color photographs or for images with many blends or gradients. However, it is not the best with sharp edges and might lead to a little blurring. This is mainly because JPEG is a method of lossy compression for digital photography.

This means that while saving the image in a JPEG format, there is a slight loss of quality due to compression. Hence, JPEG is not the greatest format in case one needs to keep making numerous edits and re-saves to the image. As with each re-save there a slight loss of quality due to compression. Still, if one only makes a few edits and the image is saved in a high quality format, the slight loss of quality due to compression is mainly negligible. An advantage to using the JPEG format is that due to compression, a JPEG image will take up a few MB of data.

Due to the popularity of JPG, it is also accepted in most if not in all programs. It is quite popular for web hosting of images, for amateur and average photographers, digital cameras, etc. This is mainly due to the fact that high quality images can be saved using less space.

MPEG, on the other hand, stands for the Moving Picture Experts Group. It is a working group of experts that was formed in 1988 by ISO and IEC. It was a

joint initiative between Hiroshi Yasuda of the Nippon Telegraph and Telephone and Leonardo Chiariglione. Chiariglione has served as the group's Chair since the group's inception.

The aim of MPEG was to set standards for audio and video compression and transmission. By 2005, the group has grown to include approximately 350 members per meeting from various industries, universities, and research institutions.

The standards as set by MPEG consist of different Parts. Each part covers a certain aspect of the whole specification. MPEG has standardized the following compression formats and ancillary standards:

- MPEG-1 (1993): Coding of moving pictures and associated audio for digital storage media at up to about 1.5 Mbit/s (ISO/IEC 11172). It includes the popular MPEG-1 Audio Layer III (MP3) audio compression format.
- MPEG-2 (1995): Generic coding of moving pictures and associated audio information (ISO/IEC 13818).
- MPEG-3: MPEG-3 dealt with standardizing scalable and multi-resolution compression and was intended for HDTV compression but was found to be redundant and was merged with MPEG-2.
- MPEG-4 (1998): Coding of audio-visual objects. It includes the MPEG-4 Part 14 (MP4).

What is the difference between bitmap and vector images?

Bitmap (or raster) images are stored as a series of tiny dots called pixels. Each pixel is actually a very small square that is assigned a color, and then arranged in a pattern to form the image. When you zoom in on a bitmap image you can see the individual pixels that make up that image. Bitmap graphics can be edited by erasing or changing the color of individual pixels using a program such as Adobe Photoshop.

Unlike bitmaps, vector images are not based on pixel patterns, but instead use mathematical formulas to draw lines and curves that can be combined to create an image from geometric objects such as circles and polygons. Vector images are edited by manipulating the lines and curves that make up the image using a program such as Adobe Illustrator.

Vector images have some important advantages over bitmap images. Vector images tend to be smaller than bitmap images. That's because a bitmap image has to store color information for each individual pixel that forms the image. A

vector image just has to store the mathematical formulas that make up the image, which take up less space.

Vector images are also more scalable than bitmap images. When a bitmap image is scaled up you begin to see the individual pixels that make up the image. This is most noticeable in the edges of the image. There are ways of making these jagged edges less noticeable but this often results in making the image blurry as well. When a vector image is scaled up, the image is redrawn using the mathematical formula. The resulting image is just as smooth as the original.

Unfortunately, vector formats are not well supported on the web. The two most popular image formats used on the Web, GIF and JPEG are bitmap formats. Most vector images must first be converted into bitmaps images (or rasterized) before they can be used on the Web. An exception is the SWF format used to create animations using Macromedia's Flash animation software.

Bitmap formats are best for images that need to have a wide range of color gradations, such as most photographs. Vector formats, on the other hand, are better for images that consist of a few areas of solid color. Examples of images that are well suited for the vector format include logos and type.

- DIFFERENCE BETWEEN ALPHA AND BETA TESTING

The development process of any application includes a series of rigorous testing, in order to ensure that the program passes the requirements and has no bugs that can cause minor glitches or serious problems later on. Typically, there are two stages of testing before any software is considered successfully completed: the alpha testing and the beta testing.

The alpha testing is the first part of testing. The software needs to pass alpha testing, in order to move on to beta testing. If the software fails alpha testing, it will go in to redevelopment and be retested, until it passes. Typically, alpha and beta testing occur after the formal test plan has been successfully completed. Alpha is the first letter in the Greek alphabet, beta is the second.

Alpha testing is performed by the users within the organization developing the software. It is done in a lab environment so that user actions can be measured and analyzed. Its purpose is to measure real users' abilities to use and navigate the software before it can be released to the general public. Alpha testing includes unit testing, component testing, and system testing. The developers use either debugger software, or hardware-assisted debuggers, that help catch bugs in the system quickly.

Once the software passes alpha testing, it is then ready for beta testing. Beta testing is considered as the pre-release testing, and is done prior to commercial release. It is the last stage of testing. When the software passes beta testing, it can then be successfully released to the general public.

Beta testing, generally involves a limited number of external users. At this time, beta test versions of software are distributed to a select group of external users, in order to give the program a real-world test. This is done to ensure that the product has few faults or bugs and that it can handle normal usage by its intended audience. Sometimes, the beta versions are made available to the open public to increase the feedback. If the audience finds any bugs or faults, they report it back to the developers, who then recreate the problem and fix it before the release. This process helps identify and mitigate defects that were missed during the formal test plan.

Beta testing also helps configure the customer support resources and processes that will be needed post-launch. It also helps give the public a preview of the software, which helps create a buzz before the software's release. If the audience likes the software, they will discuss it with their peers, post it on their social networking sites, blogs, etc. and thus help promote the product all on their own.

Both alpha and beta testing are critical components of the overall software testing process. They are both required to ensure that the software is free of bugs and faults, and works flawlessly, or as flawlessly as possible.

Q. 1)

Bitmap-based image files	**Vector-based image files.**
1. Each element is defined mathematically by the computer.	1. do not rely on mathematical formulas to define their various elements.
2. For example, if a vector-based image contains a red dot, then information such as the location of the circle's center point, the length of its radius, and the color, red, would be the essential information for this image file.	2. For example, a bitmap-based image of 1 inch x 1 inch with a 600 dpi resolution would be defined by a grid of 600 x 600 pixels.
3. These elements can either be pure graphics, western alphabets or Asian characters.	3. Hence, a bitmap-based image is like a mosaic of pixels with each pixel holding a specific color value.
4. files are more suitable for photo-realistic images that require complex color variations.	4. files are more suitable for illustrations that require precise measurements.
5. They are also easily scalable due to their mathematical nature.	5. They are not easily scalable because each bitmap-based image is mapped to a non-flexible grid.
6. –ve - It is not good for displaying photo-realistic images such as a photograph because images of this type generally do not contain well-defined shapes and curves.	6. If a bitmap-based image were to be enlarged, it would lose its sharpness.
7. extensions- *.EPS, *.AI, *CDR, or *.DWG.	7.extensions-*.PSD, *.JPG, *GIF, *.TIF, or *.BMP.

Q. 2)

GIF	JPEG
1. Graphics Interchange Format.	1. Joint Photographic Experts Group.
2. GIFs can display anything up to 256 colors.	2. JPEGs can display millions of colors and therefore are better for images such as photographs.
3. commonly used image format for Internet graphics.	3. commonly used image format for Internet graphics and for sending pictures as attachments via e-mail.
4. This format is most suitable for images with few solid colors such as icons but are less suitable for photo-realistic images due to its limitation in colors.	4. This file format is suitable for displaying photo-realistic images because it does not limit the number of colors used any given image.
5. GIFs have a file extension of .GIF.	5. JPEGs have a file extension of .JPEG, .JPG, or .JPE.
6. Gif format is best used for text, line drawings, screen shots, cartoons, and animations.	6. JPEG format is best used for digital appliances like digital camera.

Q. 3)

MIDI	Digital Audio
1. MIDI is a 'language' for sending messages between multiple electronic devices.	1. Digital audio files are like tape recordings.
2. A MIDI file contains a set of *instructions* for how the music should be played and what instrument should play the sound.	2. A digital audio file contains actual sounds, stores them, and can play them back.
3. The MIDI file does not contain the actual sounds; it only contains instructions for playing sound.	3. The digital audio contain actual sound which you can playback easily.
4. When you want to hear the contents of the MIDI commands, the MIDI file must send its commands to some kind of electronic sound generator, which then makes the sounds following the MIDI sequence's commands.	4. When record a digital audio, signal from analogue sensor like microphone is sampled using frequency and converted to digital format using an ADC converter. For playing music their info is again converted to analogue audio signal.
5. With MIDI, you can have a 'sequence' of MIDI commands played by musical instrument.	5. A Digital Audio recording is a very faithful, high fidelity *record* of what happened at a certain time, in the real world.
6. MIDI files are tiny, often 10K or less.	6. A Digital Audio file can take up 10MB or more per minute of sound.
7. They sound a little different when played on different sound cards.	7. They can reproduce exact sounds with better-than-CD quality.
8. MIDI is device dependent.	8. It is device independent.
9. Easy to edit	9. Editing is not easy.
10. It contains actual signal or voice.	10. It not contains actual signal.

11. MIDI audio play the audio through a electronic sound generator	11. Digitizing audio simply play the audio through a sound card.

Q. 3)

Parameter	Alpha Testing	Beta Testing
1. What they do.	1. Improve the quality of the product and ensure beta readiness.	1. Improve the quality of the prouduct, integrate customer input on the complete product, and ensure release readiness.
2. When they happen.	2. Toward the end of a development process when the product is in a near fully-usable state.	2. Just prior to launch, sometimes ending within weeks or even days of final release.
3. How long they last	3. Usually very long and see many iterations. It's not uncommon for alpha to last 3-5x the length of beta.	3. Usually only a few weeks (sometimes up to a couple of months) with little major iteration.
4. Who cares about it	4. Almost exclusively quality/engineering (bugs, bugs, bugs).	4. Usually involves product marketing, support, docs, quality and engineering (basically the entire product team).
5. Who participates (tests)	5. Normally performed by test engineers, employees, and sometimes "friends and family".	5. Tested in the "real world" with "real customers" and the feedback can cover every element of the product.
6. What testers should expect	6. Plenty of bugs, crashes, missing docs and features.	6. Some bugs, fewer crashes, most docs, feature complete.
7. How they're addressed	7. Most known critical issues are fixed, some features may change or be added as a result of early feedback.	7. Much of the feedback collected is considered for and/or implemented in future versions of the product. Only important/critical changes are made.

8. What they achieve	8. A good alpha test sets well-defined benchmarks and measures a product against those benchmarks.	8. Beta tests explore the limits of a product by allowing customers to explore every element of the product in their native environments.
9. When it's over	9. You have a decent idea of how a product performs and whether it meets the design criteria (and if it's "beta-ready")	9. You have a good idea of what your customer thinks about the product and what s/he is likely to experience when they purchase it.
10. What happens next	10. Beta Test.	10. Release Party.