INTERNAL ASSESSMENT & TERM WORK (5BCA2) SOLUTION
MAHARAJA COLLEGE ARA

Q1.(i)What do you mean by multimedia and How it benefits of use in public place?

Ans: Multimedia is media and content that uses a combination of different content forms. The term can be used as a noun (a medium with multiple content forms) or as an adjective describing a medium as having multiple content forms. The term is used in contrast to media which use only rudimentary computer display such as text-only, or traditional forms of printed or hand-produced material. Multimedia includes a combination of text, audio, still images, animation, video, or interactivity content forms.

Multimedia is usually recorded and played, displayed or accessed by information content processing devices, such as computerized and electronic devices, but can also be part of a live performance. Multimedia (as an adjective) also describes electronic media devices used to store and experience multimedia content. Multimedia is distinguished from mixed media in fine art; by including audio, for example, it has a broader scope. The term "rich media" is synonymous for interactive multimedia. Hypermedia can be considered one particular multimedia application.

Type of Multimedia: Multimedia may be broadly divided into linear and non-linear categories. Linear active content progresses often without any navigational control for the viewer such as a cinema presentation. Non-linear uses interactivity to control progress as with a video game or self-paced computer based training. Hypermedia is an example of non-linear 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 an interaction with the presenter or performer.

Uses of Multimedia in Public Places

Multimedia applications are becoming more popular as a means of providing information to the public in public places.

These are called information points.It is common to find information points in

- **airports**
  - **self check in kiosks**
  - **maps and information points**
- **railway stations**
  - **ticket kiosks**
  - **train time information**
- **tourist information centers**
  - **accommodation information**
  - **attractions to visit**
  - **city information**
- **museums**
  - **explanation of artifacts**
  - **interactive activities about historical events**
- **art galleries**
  - **information on artists and paintings**
- **cinemas**
  - **movie previews**
  - **ticket kiosks**

Q(ii) Give three reasons for the growth of multimedia from marketing standpoint?

Ans: Various reasons have been cited for the weak and feeble performance of the Indian multimedia content industry. These include lack of expected export order, lack of domestic market, lack of feel and sensitivities towards the special needs of the (export) market, lack of indigenous content corpus and, finally, lack of skilled/experienced manpower.

Before going into the details of such arguments, we group these reasons into two factors (for inadequate growth in multimedia contents industry); namely:

(i) Loss of momentum in the growth of Global Market for the interactive multimedia contents, and

(ii) (ii) Absence of mass market for indegeneous multimedia products; resulting into the inevitable slack in gathering of critical take-off momentum.

The current and the past year has seen a lot of shake-out, mergers, and closures in the multimedia content creation industry. Poor growth in demand has been cited as the main reason for such a state. The situation is so grim that not only

content creators, but service companies for replicating CD-ROM's have also closed in hoards. The poor growth rate has been variously attributed to, inter alia, insufficiency of interesting contents, premature hypes leading to resultant frustration with the user-interactivity/self-exploration, un-reliability of CDROM's, and finally, the competition from other well-established conventional alternatives like the piped entertainment from satellite and cable broadcasting networks, or the interactive navigational experience of the Internet web-browsing. It appears that users are not really ready to live with the poor technical quality of audio, still-images, and full-motion videos, various guises of technical in-conveniences super-imposed on the un-avoidable extra costs for the PC as the delivery equipment to experience these so-desirable user interactivity/self-exploration.

Being Global in nature, one may expect that technological innovations would be forthcoming as effective remedies to alleviate the user dissatisfaction in the near future. For example, cost of DVD-in-PC devices are expected to reduce substantially in next two to three years, which would allow near-bradcast quality full motion video in a semi-interactive mode. The first such interactive movie had been released in the first week of August 1998 in the USA. Cable and satellite TV receivers are expected to be integrated with more reliable and low cost add-on cards. Internet connectivity, of course, would become much more pervasive by becoming more user-friendly and cost effective.

The Non-existing Local Market

Lack of domestic demand is due primarily to lack of the availability of the delivery platforms (i.e. PC), and secondarily, due to absence of killer application along with the general bsence of interesting contents.

Let us probe the affordability issue little bit more closely. After all a multimedia computer today is costlier than a scooter; the usefulness of the latter is obvious while that of the former is not. Having said this we must note that despite the cost , a 50cm color television (though much less than a good multimedia enabled PC) is a taken-for-granted necessity in middle class homes. The viewership survey indicates the popularity of music, film and discovery channels. This indicates that there are enough people in the country who are ready to invest money and time for education

and entertainment through electronic media. So it is not perhaps the affordability barrier alone; it is the "value for money" which could be the real stumbling block.

Is Educational Software the Gateway?

Some analysts have suggested that for educational software production, multimedia is the natural choice, and this can be an area where Indian initative could easily make a dent in the Global Market. Though on the surface this appears to be quite a possibility, there are several issues that demand a closer scrutiny. The first issue relates to the scope of the word education; While the second relates to close symbiosis of the multimedia learning paradigm with the subject content. Without going into a detailed analysis of learning modes and requirements, the following general analysis may be considered.

Within the framework of University Education, a multimedia CBT is just another reference material. Because the preliminaries of a subject are expected to be introduced within the class room, the role of multimedia is at best expository adjunct rather than an essential vehicle to the already established CBT encouraging self-exploration through the hypertext and other interactive format. The requirement for the supplementary materials is yet un-structured and the market is unsure and immature. The requirement for this class of content arises only after the material is available.

2Q (i) List and describe the major multimedia hardware peripherals?

Ans: A peripheral is a piece of computer hardware that is added to a computer in order to expand its abilities. The term peripheral is used to describe those devices that are optional in nature, as opposed to hardware that is either demanded or always required in principle. There are all different kinds of peripherals you can add your computer. The main disctinction among peripherals is the way they are connected to your computer. They can be connected internally or externally.

Buses: A bus is a subsystem that transfers data between computer components inside a computer or between computers. Unlike a point-to-point connection, a bus can logically connect several peripherals over the same set of wires. Each bus defines its set of connectors to physically

plug devices, cards or cables together. There are two types of buses: internal and external. Internal buses are connections to various internal components. External buses are connections to various external components. There are different kinds of slots that internal and external devices can connect to.

AGP: AGP (Accelerated Graphics Port) is a high-speed point-to-point channel for attaching a graphics card to a computer's motherboard, primarily to assist in the acceleration of 3D computer graphics. AGP has been replaced over the past couple years by PCI Express. AGP cards and motherboards are still available to buy, but they are becoming less common.

Types Of Cards

Video Card: A video card (also known as graphics card) is an expansion card whose function is to generate and output images to a display. Some video cards offer added functions, such as video capture, TV tuner adapter, ability to connect multiple monitors, and others. Most video cards all share similar components. They include a graphics processing unit (GPU) which is a dedicated microprocessor optimized for 3D graphics rendering. It also includes a video BIOS that contains the basic program that governs the video card's operations and provides the instructions that allow the computer and software to interface with the card. If the video card is integrated in the motherboard, it may use the computer RAM memory. If it is not it will have its own video memory called Video RAM. This kind of memory can range from 128MB to 2GB. A video card also has a RAMDAC (Random Access Memory Digital-to-Analog Converter) which takes responsibility for turning the digital signals produced by the computer processor into an analog signal which can be understood by the computer display. Lastly, they all have outputs such as an HD-15 connector (standard monitor cable), DVI connector, S-Video, composite video or component video.

Sound Card: A sound card is an expansion card that facilitates the input and output of audio signals to/from a computer under control of computer programs. Typical uses for sound cards include providing the audio component for multimedia applications such as music composition, editing video or audio, presentation/education, and entertainment. Many computers have sound capabilities built in,, while others require additional expansion cards to provide for audio capability.

Network Card: A network card is an expansion card that allows computers to communicate over a computer network. It allows users to connect to each other either by using cables or wirelessly. Although other network technologies exist, Ethernet has achieved near-ubiquity for a while now. Every Ethernet network card has a unique 48-bit serial number called a MAC address, which is stored in ROM carried on the card. You can learn more about networking in the introduction to networking lesson.

Types of Connections

USB: USB (Universal Serial Bus) is a serial bus standard to interface devices. USB was designed to allow many peripherals to be connected using a single standardized interface socket and to improve the plug-and-play capabilities by allowing devices to be connected and disconnected without rebooting the computer. Other convient features include providing power to low-consumption devices without the need for an external power supply and allowing many devices to be used without requiring manufacturer specific, individual device drivers to be installed. USB is by far the dominating bus for connecting external devices to your computer.

Firewire: Fire wire (technically known as IEEE 1394 and also known as i.LINK for Sony) is a serial bus interface standard for high-speed communications and isochronous real-time data transfer, frequently used in a personal computer. Fire wire has replaced Parallel ports in many applications. It has been adopted as the High Definition Audio-Video Network Alliance (HANA) standard connection interface for A/V (audio/visual) component communication and control. Almost all modern digital camcorders have included this connection.

Q(ii)Distinguish between DVD and CD-ROM. How are OCR software different from Text editing tools?

Ans: DVDs and CDROMs are both optical storage devices that have a lot of use; the most prominent of which is the distribution of content like movies, music, software, and such. The biggest difference between a CDROM and a

DVD is their capacity. A CDROM typically holds 700MB of data per disc while a DVD can hold 4.7GB on a single layer. Dual layer and double-sided DVD discs push this to a maximum of 17GB. This is also the main reason why the CDROM was superseded by the DVD.

Another advantage of a DVD is its much faster data transfer speeds. The CDROM base speed of 1x translates to a data throughput of 1.23Mbit/s with typical CDROM drives reaching speeds of 56x and transfer speeds of around 68.8Mbit/s. In comparison, the 1x speed of a DVD has a higher transfer rate of 10.80Mbit/s. Although the current maximum of commonly available DVD drives is still at around 20x, it still translates to a significantly higher 216Mbit/s. Speed is hardly noticeable between a CDROM and a DVD when writing full discs due to the higher capacity of DVDs.

The higher data capacity and faster throughput of a DVD proves to be very advantageous in one of its many uses; movies. A movie is typically contained in at least two CDROMs, and viewers are forced to stop in the middle of the movie to swap discs. This is no longer a problem with a DVD. It can even accommodate freebies like; behind the scenes, interviews, outtakes, and even deleted scenes which many movie makers routinely include in the DVD release. This gives viewers a secondary reason to purchase the DVD even if they have already watched the movie in the cinema. The advantage is even more apparent when it comes to games. Some games on CDROMs often span anywhere between 2 to 6 discs. With a DVD, this is reduced to a more manageable 1-2 disc set.

Text editing tools: A word processor is usually the first software tools computer users learn. Word processor such as Ms word is powerful application that include spade checker table formatter thesauruses and prebuilt template for later resume purchase order and common document.

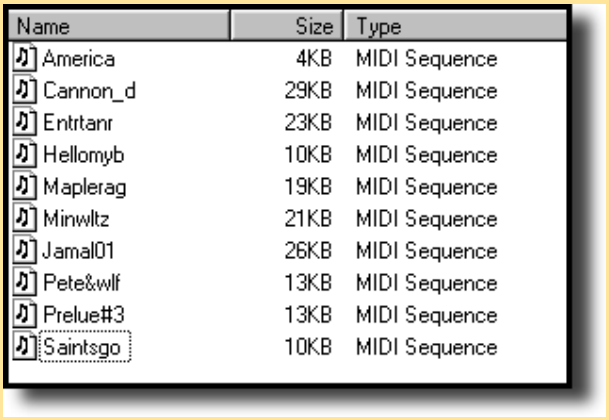
OCR (Optical character reorganization): OCR software terms bitmap character into electronically recognizable ASCII text scanner typically used to create the bitmap. Then software break the bitmap into chunks

according to weather it contains text or graphics by examine the textual and density of area of the bitmap and detecting adges.

Q3.(i) Mention the advantage and diavdavantege of MIDI over digital?

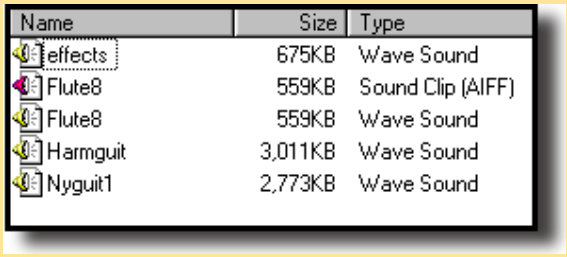
Ans:MIDI has several advantages over digital audio and also disadvantages. First, the advantages:

- **MIDI files are much more compact than digital audio files, and the size of MIDI file is completely independent of playback quality. In general, MIDI files will be 200 to 1000 times smaller than CD-quality digital audio files. Because MIDI files are small, they don't take up as much RAM, disk space, and CPU resources.**



Name	Size	Type
America	4KB	MIDI Sequence
Cannon_d	29KB	MIDI Sequence
Entrtanr	23KB	MIDI Sequence
Hellomyb	10KB	MIDI Sequence
Maplerag	19KB	MIDI Sequence
Minwltz	21KB	MIDI Sequence
Jamal01	26KB	MIDI Sequence
Pete&wlf	13KB	MIDI Sequence
Prelue#3	13KB	MIDI Sequence
Saintsgo	10KB	MIDI Sequence

MIDI files are small



Name	Size	Type
effects	675KB	Wave Sound
Flute8	559KB	Sound Clip (AIFF)
Flute8	559KB	Wave Sound
Harmguit	3,011KB	Wave Sound
Nyguit1	2,773KB	Wave Sound

Digitized audio files size

- **In some cases, MIDI files may sound better than digital audio files if the MIDI sound source you are using is of high quality.**
- **You can change the length of a MIDI file (by varying its tempo) without changing the pitch of the music or degrading the audio quality.**

Now for the disadvantages:

- **Because MIDI data isn't sound, you can be certain that playback will be accurate only if the MIDI playback device is identical to the device used for production.**
- **MIDI cannot easily be used to play back spoken dialog, although expensive and technically tricky digital samples are available**

There are two additional and often more compelling reasons to work with digital audio:

- **A wider selection of application software and system support for digital audio is available for both the Macintosh and Windows platforms.**
- **The preparation and programming required for creating digital audio do not demand knowledge of music theory; working with MIDI data usually requires a modicum of familiarity with musical scores as well as audio production.**

Q3. (ii). Discuss the use text in multimedia? Explain the term Hypermedia and Hypertext?

Ans:Text: Text is the graphic representation of speech. Unlike speech, however, text is silent, easily stored, and easily manipulated. Text in multimedia presentations makes it possible to convey large amounts of information using very little storage space. Computers customarily represent text using the ASCII (American Standard Code for Information Interchange) system. The ASCII system assigns a number for each of the characters found on a typical typewriter. Each character is represent as a binary number which can be understood by the computer. On the internet ASCII can be transmitted from one computer to another over telephone lines. Non-text files (like graphics) can also be encoded as ASCII files for transmission. Once received, the ASCII file can be translated by decoding software back into its original format.

Fonts: The graphic representation of speech can take many forms. These forms are referred to as fonts or typefaces. Fonts can be characterized by their proportionality and their serif characteristics.

Non-proportional fonts, also known as mono spaced fonts, assign exactly the same amount of horizontal space to each character. Mon spaced fonts are ideal for creating tables of information where columns of characters must be aligned. Text created with non-proportional fonts often look as

though they were produced on a typewriter. Two commonly-used non-proportional fonts are Courier and Monaco on the Macintosh and Courier New and FixedSys on Windows.

Font Samples: Times New Roman and Georgia are proportional serif fonts.

Verdana and Arial are proportional sans serif fonts.
Courier New and Courier are non-proportional serif fonts.
Monaco and FixedSys are non-proportional sans serif fonts.

Font Standards: There are basically two font standards of interest today. The first is called Postscript. Postscript fonts are designed to produce exceptionally good looking type when printed on a high-resolution printer. To use a Postscript font, a set of files must be installed on the host computer.

Hypertext : Hypertext is basically the same as regular text - it can be stored, read, searched, or edited - with an important exception: hypertext is text with pointers to other text. The browsers let you deal with the pointers in a transparent way -- select the pointer, and you are presented with the text that is pointed to.

Hypertext is text displayed on a computer or other electronic device with references (hyperlinks) to other text that the reader can immediately access, usually by a mouse click, key press sequence or by touching the screen. Apart from running text, hypertext may contain tables, images and other presentational devices. Hypertext is the underlying concept defining the structure of the World Wide Web.[1] It is an easy-to-use and flexible format to share information over the Internet.

Hypermedia - Hypermedia is a superset of hypertext. Hypermedia documents contain links not only to other pieces of text, but also to other forms of media - sounds, images, and movies. Images themselves can be selected to link to sounds or documents. This means that browsers might not display a text file, but might display images or sound or animations. Hypermedia simply combines hypertext and multimedia.

Q4(i) Explain lossless compression of sound?

Ans: Any kind of audio compression in which the original signal and the decoded signal are bitwise identical. Lossless audio compression algorithms are usually based on a data compression algorithm like PKzip or gzip but specialized for PCM audio data. The signal is divided into predictable tonal components and unpredictable noisy components.

Tonal components are stored as coefficients of a predictor, the remaining signal is coded by a Rice, Huffman, or arithmetic coder.

Lossless Compression - FLAC
Flac files contain the same data as WAV files except they are compressed using a lossless compressionalgorithm.

I consider the algorithm used for FLAC files too complicated for this article, so instead of explaining it's implementation I'll use a simple form of lossless compression to explain how lossless compression works and why it will never lose any information due to its compression.

I'll describe a technique of substitution which is simple to understand and illustrates lossless compression well.

Let's take this simple block of text that we want to compress, but we don't want any loss of information.

i have a feline, it sat on a mat. i like the feline because his fur is black. the feline that sat, is black. the mat is black, the feline is black. his fur is on the mat.

Now, I'm providing a very loose example here that will yield poor compression, but this is only to show you how the process works.

Let's assign a number to represent each word exists in that text, we'll call this the 'map':

feline = 1
i = 2
have = 3
a = 4
it = 5
sat = 6
mat = 7
on = 8
the = 9
like = 8
his = 10
fur = 12
is = 13
that = 14
black = 15
because = 16

Now that we have a number for each word, we can replace each instance of the word with its corresponding number.

2 3 4 1, 5 6 8 4 7. 2 8 9 1 16 10 12 13 15. 9 1 14 6, 13 15. 9 7 13 15, 9 1 13 15. 10 12 13 8 9 7.

Now, as you can see that the text is compressed into a much smaller sentence. Now this is rather poor compression as you need to include the 'map' of words to numbers. This will be more effective for larger blocks of text with more repeating words. For example if our text was repeated many times the compression is more effective. Remember this technique is only for illustration purposes and is not a practical implementation of lossless compression.

As you can see, to get the original text back you would just replace each number with its corresponding word. There will be no lost information and the result will be identical to the original block of text.

As shown in this example, the data in a Flac file when uncompressed is exactly the same as the data that was used before compression, that is, there is no loss of data what-so-ever.

Q4. (ii) Explain video compressor and MPEG standards?

Ans: In computer science and information theory, data compression, source coding,[1] or bit-rate reduction involves encoding information using fewer bits than the original representation. Compression can be either be loss or lossless. compression reduces bits by identifying and eliminating statistical redundancy. No information is lost in lossless compression. compression reduces bits by identifying marginally important information and removing it. The process of reducing the size of a data file is popularly referred to as data compression, although its formal name is source coding (coding done at the source of the data, before it is stored or transmitted).

Compression is useful because it helps reduce resources usage, such as data storage space or transmission capacity. Because compressed data must be decompressed to be used, this extra processing imposes computational or other costs through decompression, this situation is far from being a free lunch. Data compression is subject to a space-time complexity trade-off. For instance, a compression scheme for video may require expensive hardware for the video to be decompressed fast enough to be viewed as it is being decompressed, and the option to decompress the video in full before watching it may be inconvenient or require

additional storage. The design of data compression schemes involve trade-offs among various factors, including the degree of compression, the amount of distortion introduced (e.g., when using loss data compression), and the computational resources required to compress and uncompressed the data.

Video Compressor is a multifunctional video compression software to help you compress video files to smaller file size. With comprehensive video formats supported, plentiful profiles and handy tools provided, this Video Compressor is the ideal video file compressor and video size compressor.
This Video Compressor is the perfect one, for it can handel almost all video and audio formats, and it provides lots of optimized profiles to facilitate your compression, and it allows you to adjust encoding settings to customize the compression. Video Compressor even provides a handy Bitrate Calculator tool for you to compress video to specified file size. Powerful video editing functions are also supported.
How to compress video files: Video Compressor is the best video compressor tool with powerful functions and easy-to-use interface, free download it and have a try.

1) Click Add files button to import your source large video files;

2) Highlight the file you want to compress and use Bitrates Calculator tool to compress videos to specified file size.

MPEG (Movie picture expert group): The Moving Picture Experts Group (MPEG) is a working group of experts that was formed by ISO and IEC to set standards for audio and video compression and transmission.[1] It was established in 1988 by the initiative of Hiroshi Yasuda (Nippon Telegraph and Telephone) and Leonardo Chiariglione[2], group Chair since its inception. The first MPEG meeting was in May 1988 in Ottawa, Canada.[3][4][5] As of late 2005, MPEG has grown to include approximately 350 members per meeting from various industries, universities, and research institutions.

The MPEG compression methodology is considered asymmetric as the encoder is more complex than the decoder. The encoder needs to be algorithmic or adaptive whereas the decoder is 'dumb' and carries out fixed actions. This is considered advantageous in applications such as broadcasting where the number of expensive complex encoders is small but the number of simple inexpensive decoders is large. The MPEG's

(ISO's) approach to standardization is novel, because it is not the encoder that is standardized, but the way a decoder interprets the bit stream. A decoder that can interpret the bit stream is said to be compliant. The advantage of standardizing the decoder is that over time encoding algorithms can improve, yet compliant decoders continue to function with them. The MPEG standards give very little information regarding structure and operation of the encoder and implementers can supply encoders using proprietary algorithms. This gives scope for competition between different encoder designs, which means better designs, can evolve and users have greater choice, because encoders of different levels of cost and complexity can exist, yet a compliant decoder operates with all of them.

MPEG also standardizes the protocol and syntax under which it is possible to combine or multiplex audio data with video data to produce a digital equivalent of a television program. Many such programs can be multiplexed and MPEG defines the way such multiplexes can be created and transported. The definitions include the metadata used by decoders to de multiplex correctly.

Q5.Describe various phases of multimedia application development?

Ans: An application is a collection of programs that satisfies certain specific requirements (resolves certain problems). The solution could reside on any platform or combination of platforms, from a hardware or operating system point of view.As with other operating systems, a multimedia application development is usually composed of the following phases:

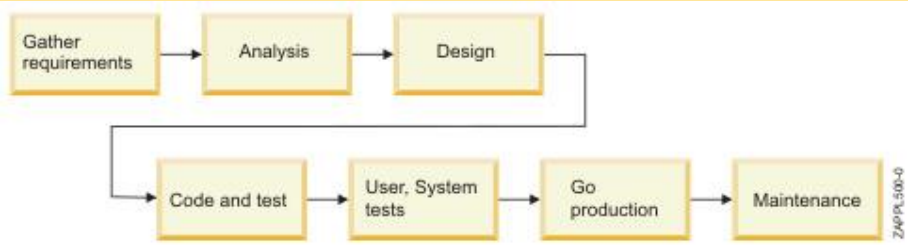
- **Design phase**
- **Gather requirements.**
- **User, hardware and software requirements**
- **Perform analysis.**
- **Develop the design in its various iterations:**
- **High-level design**
- **Detailed design**
- **Hand over the design to application programmers.**
- **Code and test application.**
- **Perform user tests.**

User tests application for functionality and usability.

- **Perform system tests.**
  - **Perform integration test (test application with other programs to verify that all programs continue to function as expected).**
  - **Perform performance (volume) test using production data.**
- **Go into production–hand off to operations.**
- **Ensure that all documentation is in place (user training, operation procedures).**
- **Maintenance phase--ongoing day-to-day changes and enhancements to application.**

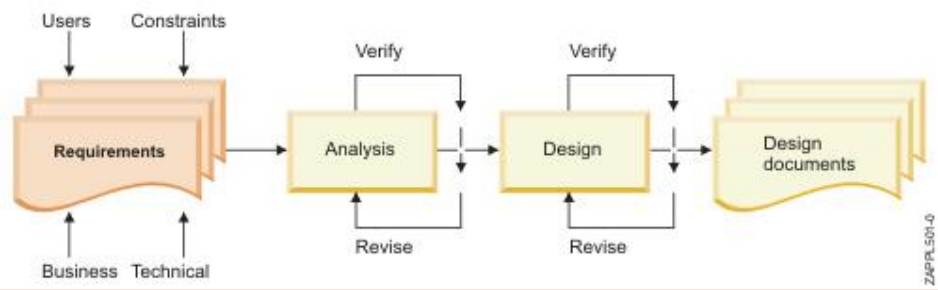
shows the process flow during the various phases of the application development life cycle.

Application development life cycle



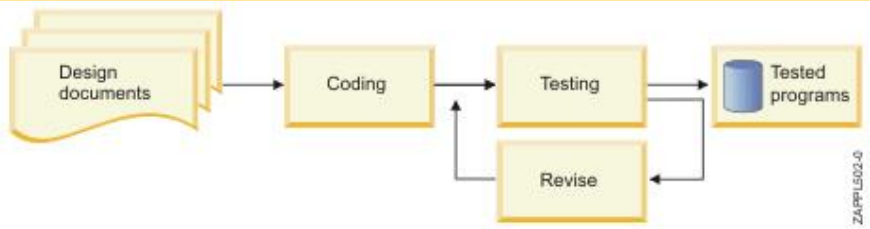
depicts the design phase up to the point of starting development. Once all of the requirements have been gathered, analyzed, verified, and a design has been produced, we are ready to pass on the programming requirements to the application programmers.

Figure 2. Design phase



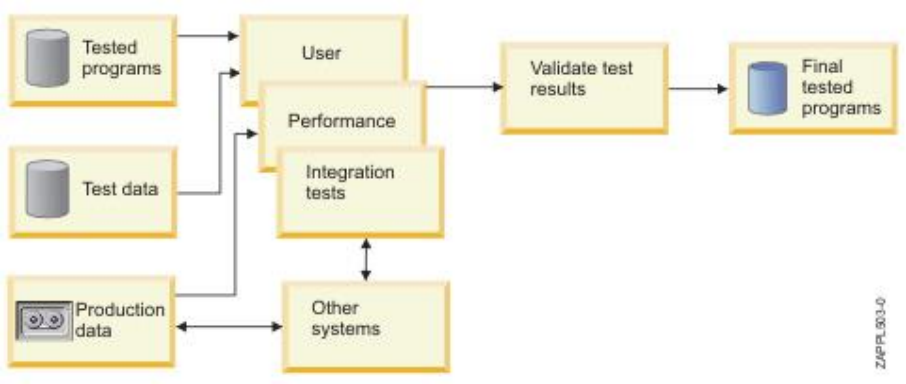
The programmers take the design documents (programming requirements) and then proceed with the iterative process of coding, testing, revising, and testing again, as we see in Figure 3.

Figure 3. Development phase



After the programs have been tested by the programmers, they will be part of a series of formal user and system tests. These are used to verify usability and functionality from a user point of view, as well as to verify the functions of the application within a larger framework (Figure 4).

Figure 4. Testing



The final phase in the development life cycle is to go to production and become steady state. As a prerequisite to going to production, the development team needs to provide documentation. This usually consists of user training and operational procedures. The user training familiarizes the users with the new application. The operational procedures documentation enables Operations to take over responsibility for running the application on an ongoing basis.
In production, the changes and enhancements are handled by a group (possibly the same programming group) that performs the maintenance. At this point in the life cycle of the application, changes are tightly controlled and must be rigorously tested before being implemented into production (Figure 5).

Figure 5. Production

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Specification: Specification is the task of precisely describing the problem description, often in a mathematically rigorous way, in most cases actually building a more or less complete model of the problem to be solved. The specification of these interfaces then becomes something that is very important to specify in the early phases of development, and is thus really considered a specification artifact.

Implementation: Reducing a design to code may be the most obvious part of the software engineering job, but it is not necessarily the largest portion. A common fallacy in software development practice is that coding should be the main focus in software development. Such a misconception is a popular reason for low software quality or software project failure. Note that effective programmers have to deal with quality factors, and provide qualities such as code readability, maintainability, and often test the code as they are writing it.

Documentation: An important (and often overlooked) task is documenting the internal design of software for the purpose of future maintenance and enhancement. Without documentation, software maintainers (who are in most cases the authors of the code they maintain) only have extremely low level design information, i.e. the code itself, to understand the software they have to change. For example, good software documentation presents the software in various levels of abstraction, permitting the reader to easily understand the functioning of the software and to assess the location and impact of the changes to be applied.

Maintenance: Maintaining and enhancing software to cope with newly discovered problems or new requirements can take far more effort than the initial development of the software. Not only may it be necessary to add code that does not fit the original design but just determining how software works at some point after it is completed may require significant effort.

Requirements Analysis: Requirements analysis can itself be broken down in sub-activities. This phase is often the topic of processes itself, often refered to as the requirements process, or even requirements engineering process, the latter title being debatable. Requirements analysis

methodologies have been created, one of the most popular being the use case driven methodology.

Coding: If you're part of a group and you chose to create the project with OOP, everyone can work on a part of the software, thus saving time for troubleshooting. Compilation of works can be done either at the very end or at every functional block of the program. I suggest completing the working first before changing it's looks to make it more appealing.

Launch: Make sure that your client is knowledgeable about the full workings of the project by giving a brief. Although it is easier to go with a silent launch, with the software simply slipping into the market, it's better for both your client and probable customers if information about it is made available. Make a site about the software and provide FAQs and customer support.

Research: Choose the platform you wish to implement your software. Several factors like OS compatibility, the overall budget of the software from development to launch as well as maintenance, reliability, portability etc. Your choice of platform should include other details like databases, web servers etc. Make certain that they fit your project's purpose and can withstand the load/s it will receive.

Testing and Optimization: More often referred to as "debugging," testing uses the Use Case entries of the UML. In simple terms, you simply use and re-use your program with on a give "case" and figure out if things are working properly. You can release demos and beta versions to the public and have the users report any bugs and/or complaints they have with the project. It also serves as advertising of sorts.

Modeling: Focus first on the backbone processes of your system. Try to emulate what functions or methods are necessary to complete the basic flow of your software project and generate an output. Additional features can be added after you've completed the essential sections of your project.

Q6. What are advantage does the computer provides over traditional animation practice. Discuss various animation principles?

Ans:

There are twelve principles of animation is given below:

INTERNAL ASSESSMENT & TERM WORK (5BCA2) SOLUTION
MAHARAJA COLLEGE ARA

1. SQUASH AND STRETCH

This action gives the illusion of weight and volume to a character as it moves. Also squash and stretch is useful in animating dialogue and doing facial expressions. How extreme the use of squash and stretch is, depends on what is required in animating the scene. Usually it's broader in a short style of picture and subtler in a feature. It is used in all forms of character animation from a bouncing ball to the body weight of a person walking. This is the most important element you will be required to master and will be used often.

2. ANTICIPATION

This movement prepares the audience for a major action the character is about to perform, such as, starting to run, jump or change expression. A dancer does not just leap off the floor. A backwards motion occurs before the forward action is executed. The backward motion is the anticipation. A comic effect can be done by not using anticipation after a series of gags that used anticipation. Almost all real action has major or minor anticipation such as a pitcher's wind-up or a golfers' back swing. Feature animation is often less broad than short animation unless a scene requires it to develop a characters personality.

3. STAGING

A pose or action should clearly communicate to the audience the attitude, mood, reaction or idea of the character as it relates to the story and continuity of the story line. The effective use of long, medium, or close up shots, as well as camera angles also helps in telling the story. There is a limited amount of time in a film, so each sequence, scene and frame of film must relate to the overall story. Do not confuse the audience with too many actions at once. Use one action clearly stated to get the idea across, unless you are animating a scene that is to depict clutter and confusion. Staging directs the audience's attention to the story or idea being told. Care must be taken in background design so it isn't obscuring the animation or competing with it due to excess detail behind the animation. Background and animation should work together as a pictorial unit in a scene.

4. STRAIGHT AHEAD AND POSE TO POSE ANIMATION

Straight ahead animation starts at the first drawing and works drawing to drawing to the end of a scene. You can lose size, volume, and proportions with this method, but it does have spontaneity and freshness. Fast, wild action scenes are done this way. Pose to Pose is more planned out and charted with key drawings done at intervals throughout the scene. Size, volumes, and proportions are controlled better this way, as is the action. The lead animator will turn charting and keys over to his assistant. An

assistant can be better used with this method so that the animator doesn't have to draw every drawing in a scene. An animator can do more scenes this way and concentrate on the planning of the animation. Many scenes use a bit of both methods of animation.

5. FOLLOW THROUGH AND OVERLAPPING ACTION

When the main body of the character stops all other parts continue to catch up to the main mass of the character, such as arms, long hair, clothing, coat tails or a dress, floppy ears or a long tail (these follow the path of action). Nothing stops all at once. This is follow through. Overlapping action is when the character changes direction while his clothes or hair continues forward. The character is going in a new direction, to be followed, a number of frames later, by his clothes in the new direction. "DRAG," in animation, for example, would be when Goofy starts to run, but his head, ears, upper body, and clothes do not keep up with his legs. In features, this type of action is done more subtly. Example: When Snow White starts to dance, her dress does not begin to move with her immediately but catches up a few frames later. Long hair and animal tail will also be handled in the same manner. Timing becomes critical to the effectiveness of drag and the overlapping action.

6. SLOW-OUT AND SLOW-IN

As action starts, we have more drawings near the starting pose, one or two in the middle, and more drawings near the next pose. Fewer drawings make the action faster and more drawings make the action slower. Slow-ins and slow-outs soften the action, making it more life-like. For a gag action, we may omit some slow-out or slow-ins for shock appeal or the surprise element. This will give more snap to the scene.

7. ARCS

All actions, with few exceptions (such as the animation of a mechanical device), follow an arc or slightly circular path. This is especially true of the human figure and the action of animals. Arcs give animation a more natural action and better flow. Think of natural movements in the terms of a pendulum swinging. All arm movement, head turns and even eye movements are executed on an arcs.

8. SECONDARY ACTION

This action adds to and enriches the main action and adds more dimension to the character animation, supplementing and/or re-enforcing the main action. Example: A character is angrily walking toward another character. The walk is forceful, aggressive, and forward leaning. The leg action is just short of a stomping walk. The secondary action is a few strong gestures of the arms working with the walk. Also, the possibility of

dialogue being delivered at the same time with tilts and turns of the head to accentuate the walk and dialogue, but not so much as to distract from the walk action. All of these actions should work together in support of one another. Think of the walk as the primary action and arm swings, head bounce and all other actions of the body as secondary or supporting action.

9. TIMING

Expertise in timing comes best with experience and personal experimentation, using the trial and error method in refining technique. The basics are: more drawings between poses slow and smooth the action. Fewer drawings make the action faster and crisper. A variety of slow and fast timing within a scene adds texture and interest to the movement. Most animation is done on twos (one drawing photographed on two frames of film) or on ones (one drawing photographed on each frame of film). Twos are used most of the time, and ones are used during camera moves such as trucks, pans and occasionally for subtle and quick dialogue animation. Also, there is timing in the acting of a character to establish mood, emotion, and reaction to another character or to a situation. Studying movement of actors and performers on stage and in films is useful when animating human or animal characters. This frame by frame examination of film footage will aid you in understanding timing for animation. This is a great way to learn from the others.

10. EXAGGERATION

Exaggeration is not extreme distortion of a drawing or extremely broad, violent action all the time. Its like a caricature of facial features, expressions, poses, attitudes and actions. Action traced from live action film can be accurate, but stiff and mechanical. In feature animation, a character must move more broadly to look natural. The same is true of facial expressions, but the action should not be as broad as in a short cartoon style. Exaggeration in a walk or an eye movement or even a head turn will give your film more appeal. Use good taste and common sense to keep from becoming too theatrical and excessively animated.

11. SOLID DRAWING

The basic principles of drawing form, weight, volume solidity and the illusion of three dimension apply to animation as it does to academic drawing. The way you draw cartoons, you draw in the classical sense, using pencil sketches and drawings for reproduction of life. You transform these into color and movement giving the characters the illusion of three- and four-dimensional life. Three dimensional is movement in space. The fourth dimension is movement in time.

12. APPEAL

A live performer has charisma. An animated character has appeal. Appealing animation does not mean just being cute and cuddly. All characters have to have appeal whether they are heroic, villainous, comic or cute. Appeal, as you will use it, includes an easy to read design, clear drawing, and personality development that will capture and involve the audience's interest. Early cartoons were basically a series of gags strung together on a main theme. Over the years, the artists have learned that to produce a feature there was a need for story continuity, character development and a higher quality of artwork throughout the entire production. Like all forms of story telling, the feature has to appeal to the mind as well as to the eye.

Q7. Distinguish between:

(a)Image and Graphics:

Image: Image are define as visual representation of the information. These are graphics and photograph composed of a collection of pixel which arranged in 2D graphics matrices. The area of computer that deals with this of picture is called combative graphics.

Another important and interesting components of multimedia is graphics. One of the basic facts in multimedia production is that , people do not like reading large amount of textual matter on the screen. Also, it is myth about human nature that a subject is better explained to them when represented in pictorial or graphics form, instead of textual matter i.e graphics are used more than text to explain a concept, present background information etc.

Unlike text that is represented in universal ASCII format, graphics does not have any single agreed format. To start with these are two different ways in which graphs or images can be described, Bitmap and Vector.

**Graphics: Graphics (from Greek γραφικός graphikos)
are visual presentations on some surface, such as a wall, canvas, screen, paper, or stone to brand, inform, illustrate, or entertain. Graphics word is derived from the word graph. A graph has x and y axis. Same way something which is created in digital word is seen on a digital screen, this screen also has x and y axis. So the output on any digital device is termed as graphics. In other words an image that is generated by a computer called graphics. The pictorial representation and manipulation of data, as**

used in computer-aided design and manufacture, in typesetting and the graphic arts, and in educational and recreational programs.

Examples are photographs, drawings, Line Art, graphs, diagrams, typography, numbers, symbols, geometric designs, maps, engineering drawings, or other images. Graphics often combine text, illustration, and color. Graphic design may consist of the deliberate selection, creation, or arrangement of typography alone, as in a brochure, flier, poster, web site, or book without any other element. Clarity or effective communication may be the objective, association with other cultural elements may be sought, or merely, the creation of a distinctive style.

Graphics can be functional or artistic. The latter can be a recorded version, such as a photograph, or an interpretation by a scientist to highlight essential features, or an artist, in which case the distinction with imaginary graphics may become blurred.

Picture photographs image and other art work is called graphics. Computer graphics deals with generation representation manipulation and display up picture with the help of computer.

Graphics is an important component of multimedia by which we can illustrate information in video from as for example to educate children with the help of multimedia.

(b)Video and Animation: Animation is an art of drawing sketches of object and then showing them in a series of frames so that it looks like a moving and living thing to us while a video is a recording of either still or moving objects. Thus the two arts are poles apart though serving the same purpose of allowing a person to view them like motion pictures. There is no dearth of people who are always confused between a video and an animation thinking them to be same but it is there for all to see that animation is a video that is created by the efforts of an artist who makes lots of sketches that are shown using a camera at a high rate that makes us feel as if it is a video and we are viewing a moving object. Read on to learn more differences between animation and video.

Videos are made with the help of a video camera and you can start shooting anywhere and anytime you want. You don't' even need a person as you can shoot nature or whatever comes to your mind. You can even shoot the actions of your pet dog and then see it on the small LCD of the video camera or replay the video on your TV by connecting the camera with the TV. On the other hand, an animation starts in the minds of a cartoonist who is either

given a story with characters or makes a series of pictures involving a character depicting it. Once the animator or the artist has completed his series of drawings, these are fed into a computer where you can add back ground music or voice to illustrate the story.

Creating animated video is easier as most of the work is done using computers. However, it is easier said than done as the main work involvers creating illustrations that take a long, long time for an artist even if he uses computer software for the purpose.

Once converted in the video format, there is virtually no difference between an animation and a video as one can upload or download them just like normal videos.