

Lecture-20

01/11/22

Unit-03

Hardware : It refers to the physical devices of a computer system. Thus input, storage, processing, control and output devices are hardware.

Software : Computer cannot do anything on its own. It must be instructed to do a job described by us. Hence, it is necessary to specify a sequence of instruction a computer must perform to solve a problem such a sequence of instruction written in a language understood by a computer is called computer program.

A program controls the computer's processing activity, and the computer performs precisely what the program want to do it.

The term software refers to a set of computer programs, processes and associated documents describing the program and how they are to be used.

Relation between Hardware & software

- Both h/w and s/w are necessary for a computer to do any work. Both are comple-

-mentary to each other.

OS - available
cost effective

2. Same hardware can be loaded with different software to make a computer perform different types of job.
3. Except for upgrade h/w it is normally one time expense whereas S/W is a continuous process.

Types of S/W

All software can be divided into two categories

- i) System software
- ii) Application software

System software - system software is a set of one or more programs design to control & the operation and extend the processing capability of a computer system. A computer system S/W performs one or more of the following functions.

1. It support development of other application software.
2. It support execution of other application software.
3. It monitor effective use of various hardware resources such as CPU, memory etc.
4. It communicates and control the operation of peripheral devices such as printer, hardisk etc.

Lecture-21

02/11/22

Some commonly known types of system software

i) Operating system (OS);-

Operating system software takes care of effective and efficient utilisation of all hardware and software component of a computer system.

ii) Programming language translator:-

It transforms the instruction prepared by programmers in a programming language into a form that can be interpreted and executed by a computer system.

iii) Communication software:-

In a network environment communication software enables transfer of data and programs from one system to another.

iv) Utility program :-

These programs are set of programs that helps user in system maintenance and performing task of routine nature. Some task commonly performed by utility programs include formatting of hardisk, taking backup of files stored on the harddisk.

Application Software:-

It is set of one or more programs design to solve a specific problem.

Example:- Examination result processing software, Railway reservation software, Banking software, computer game software are application software.

Some commonly known application software are

- i) Word processing software
 - ii) Data base software
- It is a collection of related data stored as a unit for information retrieval purpose.
- A Data base s/w is a set of program that enable us to create a data base, maintain it, organise it, sort it and selectively retrieve useful information from it.

Lecture - 22

04/11/22

iii) graphics software:-

This software used in a computer system for creating, editing, storing, retrieving and printing of design, drawing, pictures and graph.

iv) Personal assistance software:-

It allows us to use personal computer for storage and retrieval of our personal information.

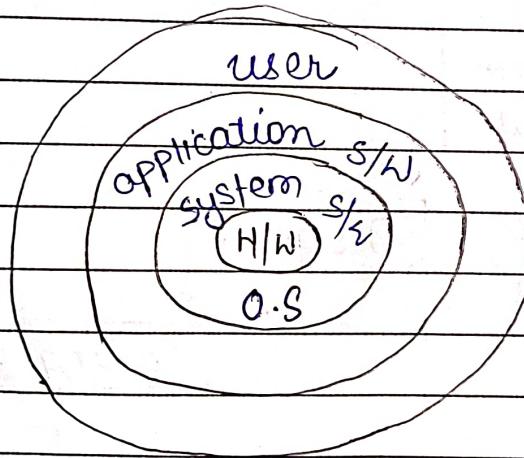
as well as planning and management of our schedules, contact, finance and inventory of important items

v) Education software:-

It allows a computer to be used as a teaching and learning tool.

vi) Entertainment software:-

It allows a computer to be used as an entertainment tool. Computer video games also comes in entertainment s/w



Software development life cycle :- (SDLC)

For development any software we

1 Requirement

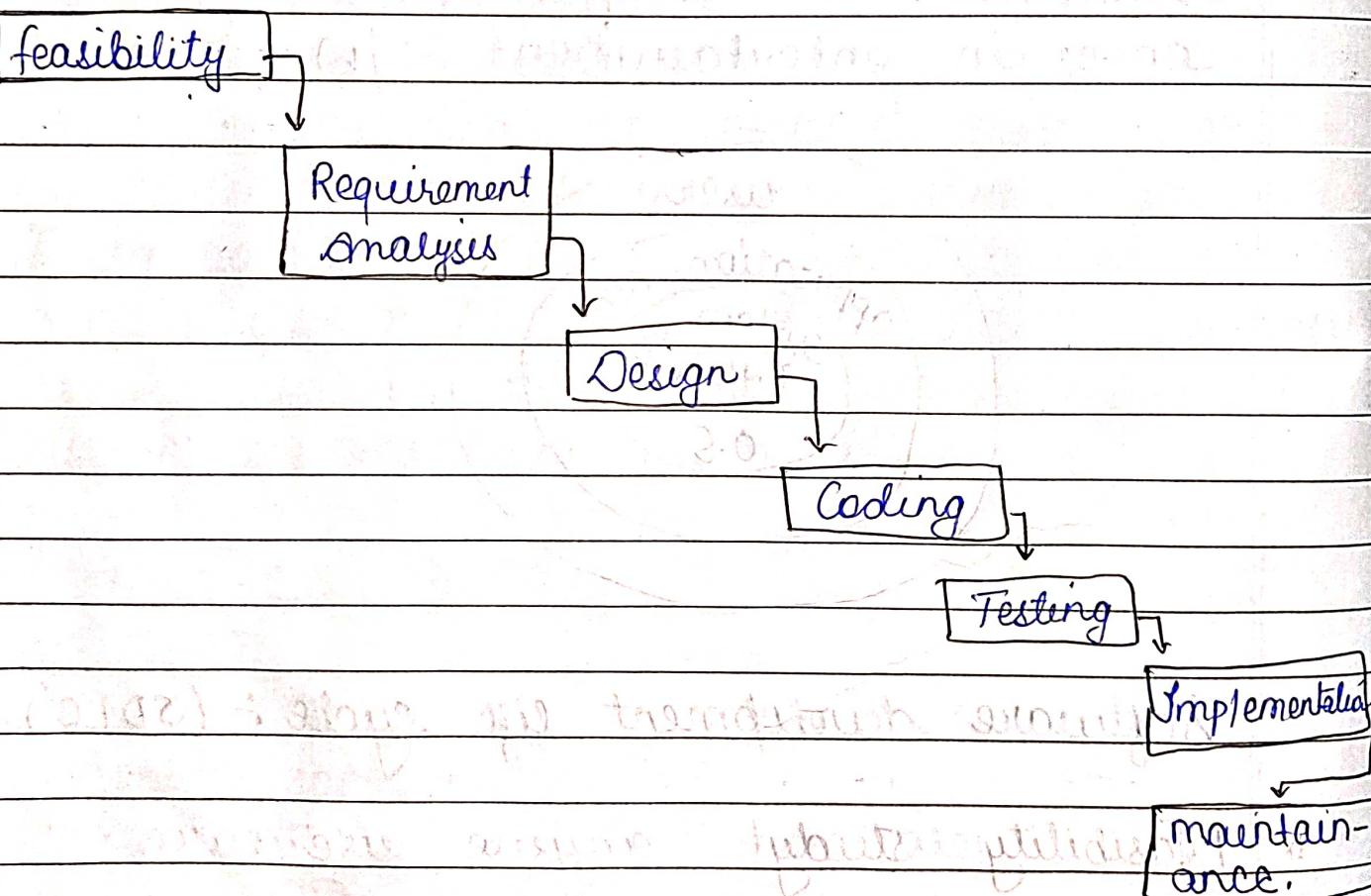
use software development life cycle. SDLC gives the knowledge for processor how to develop any software there are certain steps in SDLC

i) feasibility study

ii) Requirement analysis

- iii) Design
- iv) Coding
- v) Testing →
 - unit testing
 - integration testing
 - system testing
 - Acceptance testing
- vi) Implementation
- vii) Maintenance

Waterfall Model :-



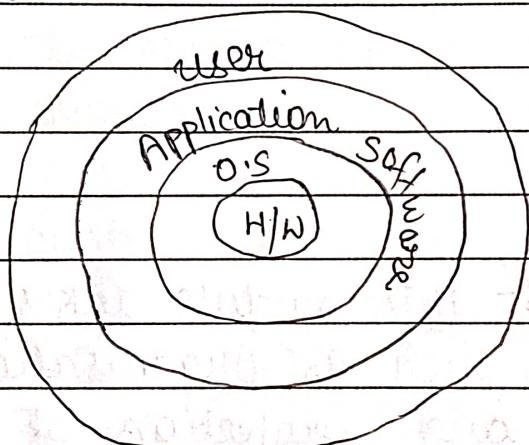
Lecture- 23
07/11/22

Operating system :- It is an integrated part of program that controls the resources of a computer system and provides

its users with an interface. There are two primary objective of operating system.

i) Make a computer system easier to use:-

Operating system hides the details of h/w resources from programmers and other users. and provides them with a convenient interface for using a computer system. It act as a ~~intermediary~~ between h/w and its users by providing a high level interface to low level hardware resources and making it easier for programmers and other users to use those resources.



ii) Manage the resources of computer system:-

Operating system manage all the resources of a computer system. This involves performing such a task as keeping ~~track~~ of who is using what resources, granting resource request, accounting for resource use and mediating conflicting request from different programs and user.

Efficient and fair sharing of system resources among users or programs is the main function

of operating system.

Main functions of Operating system:-

i) Process management :- This module takes care of creation and deletion of processes, scheduling of system resources to different processes and providing mechanism for synchronization and communication among processes.

ii) Memory management :- This module takes care of allocation and deallocation of memory space to programs.

Lecture - 24

07/11/22

iii) File management :- This module takes care of file related activities such as organisation, storage retrieval, sharing and protection of files.

iv) Security management :- This module protect the resources and information of a computer system against destruction and unauthorised access of data / information.

v) Command Interpretation :- This module takes care of interpreting user commands and directing system resources to process the command. With this mode of interaction with a system user are not much concern about hardware.

detail of the system.

Measuring system performance :-

- i) Throughput :- It is the amount of work that a system is able to do per unit time.
- It is measured as the no. of jobs completed by the system per unit time.
- If a system is able to complete n jobs in t seconds then its throughput is n/t per second during that interval.

~~Q~~ If there are 100 jobs and system takes 10 seconds to complete the work then find out the throughput of system

$$\text{throughput} = \frac{100}{10} = 10 \text{ jobs/sec.}$$

Lecture :- 25

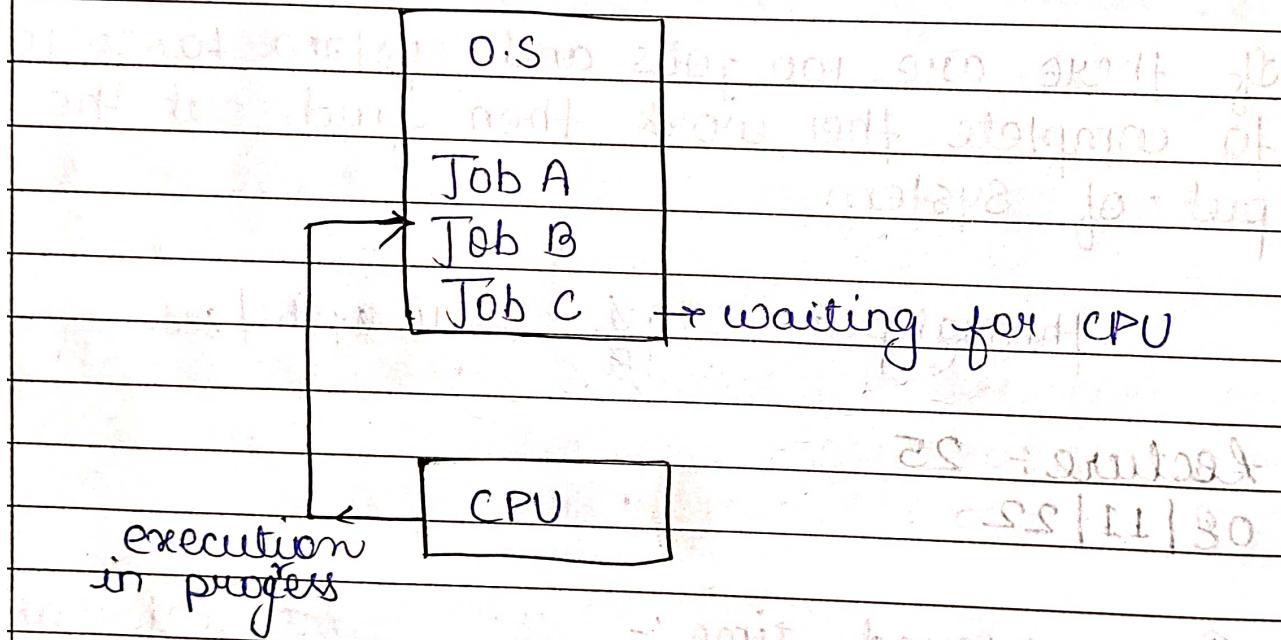
08/11/22

- ii) Turn around time :- It is time interval between the time of submission of a job to the system for processing to the time of completion of the job.

- iii) Response time :- It is interval between the time of submission of a job to the system or producing the 1st response for the job.
- Turn around time is not suitable for

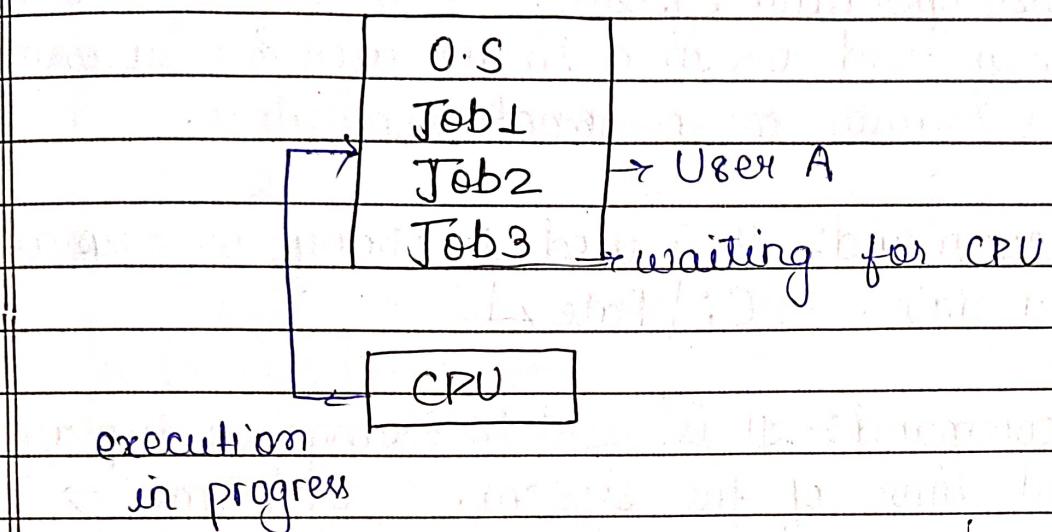
measuring the system so it is desirable to maximize throughput and minimize turn around time and response time.

Multiprogramming :- It is execution of two or more different and independent program by a computer. This concept is carried a step further in multiprogramming by enabling two or more users program simultaneously in main memory and carrying out their execution.



Multiprogramming does not mean execution of instruction from several program simultaneously rather than it means that multiple programs are available to CPU and a portion of one is executed, then a portion of another and so on.

Multitasking :- It is used for single user system. Multitasking is a interleaved execution of multiple jobs or multiple task for the same user in a single user system.



Lecture-26

09/11/22

There are mainly two types of operating system as a user interface:-

1. GUI (Graphical user interface)
2. CUI (Command user interface)

i) **GUI :-** It allows the user to select the desired option with the help of graphical image. This type of interface uses both images and menu to select command or indicate different operations. These graphical images are called icons which are small pictorial figure representing different task or programs.

ii) **CUI :-** It helps the user to interact and communicate with the computer through different commands. In this type of

interphase user has to memorise so many commands or to refer the book for different commands. It also takes too much time in writing the command.

DOS (Disk operating system):- It is one of the most commonly used O.S in a single user & environment. It runs mainly on personal computers.

- i) Date command:- It is used to change or display the current date. C:\ Date ↴
- ii) Time command:- It is used to change or display the current time of the system. C:\ Time →
- iii) Ver:- It is used to display the version of O.S .
- iv) Label command:- It is used to create, update and delete the serial no. of the particular disk.
- v) Title command:- It is used to change the title of the screen.
- vi) MKDIR | MD command:- It is used to create a directory in a particular drive. Syntax:- C:\ MKDIR
C:\ MKDIR D:\ BCA
Syntax of ← CHDIR | CD } → change directory
CHDIR command C:\d
C\ CD } to go on a folder
D\ Tutorial }
- vii) CHDIR command:- It is used to change the current working directory.

Lecture - 27

14/11/22

Edit command :- It is used to open DOS editor to create, display and modify the file.

For saving the any file we use F6 or $\text{ctrl} + \text{z}$

Copy con :- It is used for making a file
Syntax: filename.txt
Ex:- Copycon BCA.txt

Type command :- To see the content of a file.
Syntax- Type- filename
Ex:- Type BCA

Rename command :- It is used to change the file name.

Syntax:- ren - filename.txt - filename.txt
Ex:- ren - BCA name.txt - MCA.txt

Copy command :- It is used to make duplicate copy of a file

Syntax:- Copy - file1 - file2
Ex:- Copy BCA - BCA1

Del command :- It is used to delete a file

Syntax- Del - File Name
Ex:- Del BCA

Dir command:- It is used to free all the directory.

Directory is a collection of files or we can say that all the files are stored in the directory. Syntax:- Directory ↴ (Press)

CLS command :- It is used to clear the screen.

Syntax:- CLS ↴

MD command :- This command is used to make directory.

Syntax:- MD - directory name

RD command :- It is used to read a directory.

Syntax:- RD ↴

Exit command :- It is used to exit from DOS prompt.

Syntax:- Exit ↴

Shutdown command :- It is used to shut down the system. Syntax:- shutdown ↴

File management:- File is a collection of related information or item. Every file has a name its data and attributes. Name of a file is uniquely identify in a system.

⇒ User access files by their names.

- ⇒ A file's data is its content.
- ⇒ Attributes of a file contains other information about the file such as date and time of its creation, date and time of last access, date and time of last update, its current size etc

Lecture - 28

14/11/22

File management of a operating system takes care of file related activity, structuring, accessing, naming, sharing and protection of files

File access Methods:-

Two commonly supported file access methods at operating system level are ① sequential
② Random

i) Sequential file access

Sequential access files are used normally with sequential access storage media such as magnetic tape.

Contents of a sequential access file can be accessed only sequentially. i.e. a process can read the bytes or records in the file in the order in which they are stored starting at the beginning. Reading of bytes or records randomly or out of order is not possible.

ii>

Random access file:-

Random access files are used normally with random access storage media such as magnetic or optical disk. Unlike a sequential access file the content of random access file can be access randomly irrespective to the order in which the bytes or records are stored.

File Operation:-

An operating system provides a set of operations to deal with files and their contents

i) Create :- It is used to create a file

ii) Delete :- It is used to delete an ^{existing} file.

iii) Open :- It is used to open an existing file.

iv) Close :- It is used to close an ^{existing} file.

v) Read :- It is used to read data stored in a file.

vi) Write :- It is used to write new data in a file.

vii) Rename :- It is used to change the name of an existing file.

viii) Copy :- It is used to copy a file OR It is used to make duplicate of existing file

File Naming :-

When a file is created its creator gives it a name that can be later used to access the file. The rule for naming files vary

from one O.S to another. There are some rules in file naming.

1. MS DOS allows only upto 8 characters for a file name while microsoft windows allow upto 255 characters.
2. Some operating system allows only letters and numbers to be used in file names whereas others allow letters, numbers and special characters.
3. Some operating system such as ~~unix~~ unix distinguish between low upper case and lower case letters whereas others such as MS DOS does not differentiate between upper case and lower case letters.

Lecture -29

15/11/22

4. File extensions usually indicate something about the file before operating on it. Many operating system support file names having two or more parts and each part is separated by a period. For example - MS DOS supports two part file names in which first part can have 1-8 characters and the optional second part can have 1-3 characters. In unix file may have more than two parts as in program.c.z where .c and .z

are used to indicate that it is a C language program file which has been compressed using LZ compression algorithm.

- Some compression algorithm are LZ, LZ77, LZ78, LZW.

File extension and its meaning

• C	C source prog. file
• bin	Executable binary prog. file
• txt	Text file
• bak	Backup file
• XLS	M-S Excel
• JPG	JPEG Graphics file
• F77	Fortran source prog. file

Lecture - 30

15/11/22

Version of Windows

Microsoft windows has 9 major version and its 1st version was released in 1985 over 29 years later windows looks very different but it becomes familiar with users.

There are following versions of windows

i) Windows 1

The original windows 1 was released in November 1985 and was microsoft first

true attempt at a graphical user interface. At this time mouse was added as a hardware.

ii) Windows 2 :- Two years after the realise of windows 1 microsoft windows 2 replaced it in 8 December 1987. The big innovation for windows 2 was that windows could overlap each other and it also introduce the ability to minimise or maximize the window. The control panel ~~was~~ where various system settings and configuration options was collected together in one ~~play~~ place.

Microsoft word and Excel also made there first appearance.

iii) Windows 3 :- It was launched in 1990. Window 3 was the first version that have more success in the worldwide.

Windows 3 introduced the ability to run MS DOS programs in windows. The word multitasking came at this time. This

iv) Windows 3.1 :- It was heavily released in 1992. It required 1 MB of RAM to run and allowed supported MS DOS program to be control with a mouse for the first time. Windows 3.1 was also the first window that was distributed on a CD ROM.

Windows 95 :- As the name implies windows 95 arrived in August 1995 and with it brought the 1st start button and start menu. It also introduced the concept of "plug and play" - Connect a peripheral device and the operating system finds the appropriate driver for it and make it work. MS DOS still played important role for windows 95. Internet explorer started on windows 95.

Lecture

- 31

16/11/22

Windows 98 :- It was released in June 1998. Windows 98 was built on windows 95.

Windows 98 introduced the back and forward navigation buttons and the address bar in windows explorer. On

One of the biggest changes was the introduction of windows driver model for computer component and accessories. One driver support all the versions of windows.

USB support was much improved in windows 98.

Windows ME :- (Millennium)

Windows ME addition was the last windows to be based on MS DOS 9x line.

It was released in September 2000. It was the consumer aimed operating system twinned with windows 2000. Aimed at the enterprise market. It introduced some

important concept to consumers including more automated system recovering tools.

Windows 2000 :- It was released in february 2000 and it was based on microsoft business oriented system windows NT (New Technology) and later it becomes the basis for windows XP.

SC-stufes

Windows XP (experience) :- It is one of the best windows version and it was released in October 2001 and brought microsoft enterprise line and consumer line of operating system under one roof.

It was based on windows NT and consumer friendly. It makes text easier to read on LCD screen and various automated update and recovery tools were present.

Windows XP was the longest running microsoft operating system and it have three major updates in 13 years from its release date. Windows XP is still used. Its biggest problem was its security.

Windows Vista :- Windows XP was replaced by windows Vista in 2007. Vista updates the look and feel of windows with more focus on transparent elements, search and security. It runs slowly on the older system because

This operating system was very heavy and had lot of security features.

Windows 7:- It was released in October 2009. It was intended to fix all the problems faced by Vista. Its appearance was user friendly and it was faster, more stable and easier to use.

Lecture-32

18/11/22 Windows 8:- It was released in October 2012. Windows 8 was Microsoft's most radical overhaul of the Windows interface, left the start button and start menu in favour of user to make it user friendly. Windows 8 was faster than previous version of Windows and included support for the new devices.

Windows 10:- It was released in September 2014. Windows 10 has only been released as a test version for users to try it. It is very much still in progress.

Windows Version made by default: How to run dos command

- Windows 3 It runs dos prompt in windows made by default
- Windows 95, 98, XP, Me
 - ① Click start button
 - ② Select program
 - ③ Select ms dos prompt

Lecture - 33

18/11/22

Windows 2000

Click start menu

click run, type cmd

Press enter

Windows 7

Click start

a. Type cmd and press enter

Windows 8

Start menu

Type cmd

Press enter OR window key +

X or windows + X

Windows 10

Click on Start menu

Click on command prompt and press enter

How to start a computer in Dos mode in XP

1. Start the system
2. Press F8 key repeatedly when first boot menu appears. The windows advance option menu should appear then stop pressing F8 key.
3. Press the down key and select "safe mode with command prompt"
4. Press enter key to boot the system in dos mode. The ms dos command line @inter-

- face will appear
5. Type the dos command to executes | 11/81 |
6. Type shutdown or restart your system

Lecture - 34

23/11/22

Unit - 4 Multimedia

Multimedia :- A medium is plural of media. It is something that can be used for presentation of information. There are two basic ways to present some information.

- i) Unimedia Presentation
ii) Multimedia Presentation

i) Unimedia Presentation :- In this case a single medium is used to present information for e.g. Music system is unimedium device because it present information by using sound medium only.
* A book having only text is also a uni-medium device because it present information by using text medium only.

ii) Multimedia Presentation :- In this case more than one medium is used to present information.

for e.g. :- A Television system is a multi-

Lecture - 34

23/11/22

Unit-4 Multimedia

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ii) Multimedia Presentation :- In this case more than one medium is used to present information.

for e.g.:- A Television system is a multi-

media device because it presents information by using sound and video media.

* A book having both text and diagrams is also a multimedia device because it presents information by using text, graphics and images.

* Multimedia presentation of any information enhance the capability of its users because it involves use of multiple senses by the users. In case of computer system media used for storage and transmission of information are

- Text
- Graphics
- Animation
- Audio
- Video

Multimedia in Computer system:-

A Multimedia computer system is a computer having capability to integrate two or more types of media for generation, storage, representation, manipulation and access of multimedia information.

* In general data size of multimedia information is much larger than textual information because representation of graphics, animation, audio or video required much larger number of bits then the plain text.

Due to this multimedia computer system require -

-) Faster CPU (for quicker processing of large amount of data)
-) Larger storage device (for storing large data files)
-) Larger main memory
-) Good graphics terminal (for displaying graphics, animation and video)
-) Audio devices

Multimedia Components :-

1.) Text:- Alpha numeric and special characters are used to present information in text form. Computers are widely used for text processing.

Hardware requirement for text:- It involves the following hardware devices

-) Keyboards are used for text data input
-) Monitors are used to display text information
-) Printers are used commonly to output text in hardcopy form

Lecture - 35

30/11/22

Software requirement for text :-

Following text processing capabilities are highly desirable in multimedia computer system for better presentation and use of textual information

- i) Text editing tools :- Text editors and word processing packages are used to generate, edit and form a layout of a text document in a better way.
- ii) Text & style :- Presentation of textual information can be made more effective by using text of various sizes, fonts and styles.
- iii) Text searching :- Use of text information can be enhance by text searching feature. This feature enables a user to enter a word or phrase and computer quickly find and display the result.
- iv) Hypertext :- This feature provides flexibility of structuring and accessing computer based text information. It enables the user to obtain information by taking clicking on a anchor within a document.

Anchor: A word or phrase linked to another document.

v) Text importing and exporting:- Task of creating a textual document can be simplified greatly by importing or exporting the document. This feature makes our work easy.

2.) Graphics:-

Computer graphics deals with generation, representation, manipulation and display of picture in computer system. Graphics is an important component of multimedia because picture is a powerful way to describe any information.

Hardware requirement for graphics:-

Allocating device such as mouse is attach to a video display terminal along with drawing software that is used to draw pictures directly on computer screen by the use of generating graphics application.

Scanners are used as input device for capturing photographs and

Lecture - 36

02/12/22

In multimedia application all educating display photograph of a horse along with its textual

description makes more effective. Without photograph it will be very difficult to explain by using only text.

Graphics type:- Picture used in computer graphics can be classified into two types:-

i) Line drawing - These are drawings in the form of 2D and 3D picture. Created from mathematical representation simple object lines, circle, arcs etc are used to create complex object.

For ex:- Picture of a chair can be drawn using lines

* Numerical results obtain from computation can also be transformed into graphics form like bar graph or piechart.

* Area of computer graphics dealing with this type of picture is known as generating graphics.

Image:- These are pictures and photographs composed of collection of pixels. Since storage representation of an image is its direct translation of pixels by pixels. There is no concept of line or circle.

Each pixel is composed of three elements red, green, blue on display screen each component of pixel corresponds to a phosphor

Hardware requirement for graphics:-

- * Allocating device such as mouse is attach to a video display terminal along with drawing software that is used to draw pictures directly on computer screen by the use of generating graphics application.
- * Scanners are used as input device for capturing photographs and drawing as digital image for graphic application.
- * Computer screen with graphics display capability are used to display graphics.
- * Leisure printers are used to output graphics in hand copy form.

Software requirement for graphics:-

i) Drawing and painting software

This software is used to create graphics by using mouse and various simple objects such as lines, circles and polygons with various supporting colors.

ii) Screen capture software - It is used to take a snapshot from a screen display and capture it as a graphic image.

iii) Clip art - It is a library of commonly used graphic images or objects such as aeroplane, building, tower etc. These images can be imported directly from the library and used in multimedia system.

Lecture - 38

05/12/22

iv) Graphics import - Task of creating a multimedia application do incorporate and simplified greatly. If application software can import graphics image in some standard format. Common graphics format supported by software are

- BMP
- GIF
- PNG

- BMP (Bit Map Image) - It contains bit-map graphics data. BMP images are device independent. BMP data may be compressed or uncompressed.
- GIF (Graphics Interchange Format) - It is popular on worldwide web. This format support upto 8 bits and pixel. It also support animation. It can be compressed in size and the quality does not degrade.
- PNG (Portable Network Graphics) - It is also known as successor of GIF. It uses compression technique to save images like GIF.
- PCX (Picture Exchange) - It also uses lossy compression technique to compress any image.

Animation:-

Computer animation deals with generation, sequencing and display of a set of images called frames to create and effect of visual change of motion.

Animation is an important component of a multimedia because just as a picture is a powerful way to describe any information, a small animation is more powerful and useful to describe any concept. Animation deals with displaying a sequence of images at a reasonable speed to create an impression of movement.

- * For jerk free full motion animation 25-30 frames have to be displayed per second.

Lecture - 39

06/12/22

Hardware requirement of Animation:-

Image generation tools & devices such as scanner, digital camera, video capture device or video cassette recorder. These are used to generate images for used in animation.

Software requirement of Animation:-

- * Animation creation software - It enables the user to create animation sequences by using a mouse and various simple objects such as lines, circles & polygons with various supporting colors.

- * Screen capture software - It is used to take a snapshot of a computer screen and capture it as graphic image that

can be used in animation clip.

- * Animation clips - It is library of animation clips one can select and import an animation clip directly from this library for use in a multimedia application.
- * Recording & playback capability - It enables the user to control recording & display of animation sequence. It provides option to pause and replay on animation sequence.
- * Transition effect - Animation can be made more interesting with transition effect such as zooming & rotation of objects.

Audio :-

Computer audio deals with synthesizing, recording & playback of audio or sound with a computer. Audio is an important component of multimedia because in many cases sound can reinforce our understanding of information presented in other ways and in some cases sound is the only way to provide the desired information. Hence audio is only medium that can provide information accurately.

There are two types of audio

- i) Analog
- ii) Digital

Analog :- Audio information travels in natural medium in the form of sound waves that are analog in nature. Sound waves must be converted from analog to digital forms to enable a computer to understand audio information.

Lecture - 40

06/12/22

- * Transducer is a device is capable of changing signal from one form to another.
For example - Microphone is an example of transducer that converts sound waves into electrical signals conversely loud speaker is an example of transducer which converts electrical signals to sound waves.
- * Information can be represented as analog or digital signals. Analog signals has a continuous smooth fluctuations while digital signals are composed of discrete values represented by numbers.
- * Transformation between analog and digital signals is achieved by analog to digital (A/D) converter and digital to analog converter.

Hardware requirement for audio:-

- * A sound board / card equipped with A to D and D to A converter.
- * Some input device like microphone is used for audio input to record human voice music or any type of sound in a computer.

- * A/D converter is also required for converting the signals.
- * Some output device like speaker or headphone is used for audio output for listening the recorded sound.

Software requirement for audio :-

- i) Audio clips - It is a library of audio clips from which one can select and directly import audio clip and it can use in multimedia application. This saves lot of time and effort. Audio clip library also provides facilities to add new audio clip or delete and existing audio clip from the library.
- ii) Software support for high quality sound - If a multimedia application uses very high quality audio to reproduce its sound effectively it is important to have not only necessary hardware but also software which support both recording and playback of high quality audio.
- iii) Recording and playback capability - It enables the user to control recording and playback of audio for example - It provides options to play, pause and replay of a sound sequence.

Priniv)

Voice recognition software - It is used to identify the voice by matching the user's voice with a set of stored data base along with detail of speaker of each voice.

Lecture - 41
07/12/22

Video - Like animation user deals with recording and display of sequence of images at a reasonable speed to create an impression of movement. Each individual image of a sequence of images is called a frame. For a jerk free full motion video 25 to 30 frames have to be displayed per second. Video is an important component of multimedia because it is very useful for illustrating the concept that involve movement both animation and video deals with display of sequence of images to generate and effect of motion. Video deals with recording of real life events.

Hardware requirements for Video:-

- i) A video camera is the most commonly used input device for capturing video data.
- ii) A video monitor is the most commonly used output device for displaying video data.

- iii) A video board equipped with A/D and D/A converter.
- iv) Video editors are used to cut and paste video sequences, add special effect and create new video sequences from existing video sequences.

Software requirement for video :-

- i) Video clips - It is library of video clips. One can select and import video clips directly from the library and can used in multimedia application. This saves lot of time and effort. A video clip library provides facilities to add a new video clip or to delete an existing video clip from the library.
- ii) Recording and Playback Capability - It enables the user to control recording and display of a video sequence. It provides option to pause and replay of a video sequence.

Lecture - 42

16/12/22

Multimedia application :- Multimedia application has a wide range where multimedia application enables the reader to make its

document appreciate and multimedia makes the application in good looking.

- i) Multimedia presentation - Multimedia application can present information in many forms like text, animation, graphics, audio and video and this involves the use of all our multiple senses. Hence multimedia presentation can be used to explain a subject matter in a much better manner. It makes the presentation more interesting.
- ii) Video games :- There has been different types of video games available on computer system. Sound and animation are important part in this application to makes game thrilling and exciting for users.
- iii) Special effect in movies - Several movies contain many computer generated visual tricks for example - In a Hindi movie, Chachi 420, Hero is shown being transform from man to women by use of computer graphics techniques called morphing.
- iv) Multimedia conferencing - It is also known as video conferencing. It refers to a system that simulates face to face interaction among participating users that are located in different parts and they feel that they are sitting and discussing in the same

room

Lecture-43

16/12/22

Use of Multimedia in Education -

Nowadays the classroom need is not limited to that conditional method rather than if needs audio and visual media. With the use of multimedia everything can be integrated in one system.

Use of multimedia in mass media & journalism

Multimedia is used in mass media and journalism, in various magazine and news-papers that are published periodically. Multi-media plays important role in a publishing house as there are many works of news-paper designing and other stuff also.

Use of multimedia in Science and Technology

Multimedia has a wide application in Science and technology, it is capable of transferring audio, sending messages and other documents.

Use of multimedia in E-commerce

Online business has effectively replace traditional ways of buying and selling. Simply scrolling through online shopping sites like Amazon and flipkart we can see how text, pictures and videos have been appear

on the screen to show the product detail.

Use of multimedia in Entertainment -

One of the main application of multimedia can be seen in entertainment industry. Movies, advertisements, short clips are now been created using special effect and animation.

Use of multimedia in medicine -

Multimedia is used by doctors to get trained by simply watching a surgery that is done in virtual platform. Other application of multimedia in medicine allow a patient to consult a doctor online to get medical treatment for their sickness.

MS Word :-

MS word enables us to create professional quality reports, documents, resumes and letters. Unlike a plain text editor, MS word has highlights including grammar check, spell check, image support, text and font formating of advance page layout, HTML support and many more.

Lecture - 44

19/12/22

Introduction to MS Word :-

Starting word :-

- i) Click the start button
- ii) Point to the all programs
- iii) Click MS Word 2007

How to create new document

Click the MS Office button and then new.
OR
Press **ctrl + N**

How to save documents -

Press **ctrl + S** or 'Save' button

- i) Click on the office button in the left hand corner and then you can choose save button on the quick access tool bar.
- ii) Type a name of your work. There is no need to give the file extension. Your work is saved in my documents.
- iii) Press enter button

Opening an existing file :-

- i) Click on the office button and choose the option 'open'.
- ii) Click on the name of your file that you want to open.
- iii) Press enter button

Interface of MS Word :-

The

Title bar :- The title bar shows the name

of document on the screen. When a new document is started word gives it a generic name like document 1 or new document on the title bar. When you save the document with a name then the old name is replaced by the given name.

Windows Control - These are the set of three buttons in the top right corner of the window. It contains three button that are

i) The right button is the close button.

ii) The left button is the minimise button which minimise the program window to the task bar.

iii) The middle button is the maximize button

Office button - Clicking on office button it a drop down menu that shows some commands for file operation. These command are described in below

i) New - When you click on this button a new document will open

ii) Open - Start the open dialog where you can navigate to your document folder, select an existing document and open it in word window.

Lecture - 45

19/12/22

- iii) Save - Clicking save button saves the current document. If it has been given a name and saved earlier otherwise it launch the message save as dialog.
 - iv) Save as - In save as you have to assign a name to the document and save it. You can also rename a document saved earlier and save it with the new name.
 - v) Print - This command is used to print the current document.
 - vi) Prepare - Clicking on this button a menu opens which provides information regarding the current document. and has command for preparing it for distribution.
 - vii) Publish - This command allow you to create a blog post and publish it.
 - viii) Help button - It is located below the window controls in the top right corner of word window - This button brings up the word help window.
- Quick access tool bar - The quick access tool bar is a customizable tool bar that contains

commands that may you want to use. You can place the quick access tool bar above or below the ribbon.

- * Quick access tool bar contains -
Save option, undo, redo

Status bar : - On the left hand side the status bar displays document information such as current page no., total no. of pages, word count, language, proofing error notifications etc.

View buttons - These buttons allow you to use five different document views.

- i) Print layout view - This view shows the document as it will look when it is printed.
- ii) Full screen reading view - This view shows the document on full screen to make reading your document more comfortably.
- iii) Draft view - This is most frequently used view for editing the document.

Lecture - 46

20/12/22

Zoom tool - The zoom slider lets you zoom out or zoom in the current document. The zoom range is 10% - 500%. The current zoom level is displayed on the task bar.

immediately

Vertical and horizontal scroll bar - The vertical scroll bar is located at the extreme right of the word 2007 window while the horizontal scroll bar is at the bottom of the window just above the status bar. Vertical scroll bar is always visible while horizontal scroll bar appears only when the width of page is increases or exceed the screen width.

Text area - Framed between the rulers and scroll bar is a large area looking like a black sheet of a paper. This is the text area where you can type the text of the document. You can see a blinking vertical line in the top left corner known as cursor. The typed character appears at its location.

Press ~~ctrl + F~~ for find work

- i) Alt + tab switch to next window.
- ii) Alt + shift + tab switch to previous window
- iii) Ctrl + F4 or ~~ctrl + w~~ close ^{the} active window
- iv) Ctrl + F6 when more than one window

is open it will switch to the next window

- v) Home - it moves to the beginning of the current line
- vi) End - move the cursor to the end of the line.
- vii) Ctrl + Home - it moves the cursor to the top of the document
- viii) Ctrl + End - it moves the cursor to the end of the document.

Lecture - 47

21/12/22

line spacing :- It is the space between each line in a paragraph. MS word allows you to customise the line spacing to a single spaced, double spaced or any other amount you want. The default spacing in word is 1.08 lines which is slightly larger than single spaced.

Adjusting line spacing - Line spacing option gives limited power to the customer. To adjust spacing with more precise select line spacing option from the menu to access the paragraph dialog box.

After this few additional options will appear. You can use that option to customise the spacing.

Exactly - When you choose this option the line spacing is measured in points. Just like in font size. for example - If you are using 12 point text you can use 15 point spacing.

Atleast → Like the exactly option atleast option lets you to choose how many points of spacing you want

Multiple - This option lets you type the number of lines of spacing you want for example - choosing multiple and changing the spacing to 1.2 will make the text slightly more spread than the single spaced text. If you want the lines to be closer than you can choose a smaller value like 0.9

Paragraph spacing :- Just like spacing between lines in your document you can adjust spacing before and after paragraphs. This will be useful for separating paragraphs, headings and sub headings.

- i) Select the paragraphs or paragraph you want to format
- ii) On the home tab click the line and paragraph spacing command.

iii)

Click add space before paragraph or remove space after paragraph from drop down menu.

iv)

From drop down menu you can also select line spacing option to open the paragraph dialog box.

Create chart or Graph in MS Word :-

MS words provides the capability of creating a chart or graph and adding to your document. To create and insert a chart or graph, there are three steps -

i)

Open the MS word program.

ii)

In the ribbon bar at the top click the insert tab.

iii)

Click the chart option if might be in

iv)

Once the chart window is open select the type of chart or graph that you want to insert and then click OK button.

Lecture - 48

23/12/22

Crop a picture - When you crop a picture it trims horizontal and vertical sides. Cropping is useful when you only want to include a portion of a picture.

1)

Select the picture

2)

Click the format tab in the picture tool ribbon

group.

3. Click the crop button
4. Click and drag the crop handles where you want to crop.
5. Click the crop button again when finish the cropping.

Lecture - 49

23/12/22

Text Alignment - When we create professional document then it should be properly align this basically means positioning it so that it all lines up neatly. You can do this by using text alignment text button in your tool bar.

There are four different alignment options.

- i) Align text left
- ii) Center text
- iii) Align text right
- iv) Justify text

OMR (optical mark reader) - OMR is method of entering data into a computer system. Optical mark reader read pencil or pen marks made in predefine positions on paper forms as responder to question or tick list form.

The OMR data entering system contains the information to convert the presence and

absence of marks into a computer data file.

By using OMR technology large value of data can be collected and processed in a short period of time.

Advantage of OMR Technology

- * OMR scanning is fast . It can scan 2000 to 10,000 form per hour
- * OMR scanning is accurate
- * OMR scanning is effective
- * OMR scanning is easy to implement and support

OCR (Optical character Recognition) - It is a technology that recognize text within a digital image, it is commonly used to recognize text in scan document and image OCR software can be used to convert a physical paper document or an image into a accessible electronic version with text.

for example- if you can scan a paper document or photograph with a printer will create a file digital image in it. The file could be jpg or pdf.

- * But the new for electronic file may be only an image of the original document.
- * You contains the image into an OCR program.
- * The OCR programs recognize the text and convert the document to an editable text file.

MICR (Magnetic ink character recognition / reader)

This technology was invented in '1950' it is used to verify the originality of cheques and other papers.

Document - Special ink which is sensitive to magnetic field is used to print certain characters on the original document.

MICR is commonly used by Banks and other financial institution to accelerate (on) the processing and clearance of cheques.

The MICR line is the sequence of the number and character that appear at the bottom of a cheque.

It consists of three no. of set

- i) The banking routing number
- ii) The account number
- iii) The cheque number

The order of no. set is country specific. These three set of numbers act as a unique identifier for the cheque and the person who signs it.

For example- If a cheque is produced by using a color photocopying machine, the magnetic line either did not respond to magnetic field or it will produce an incorrect code when scan using a reader.

Disk cleanup - It is a Microsoft software utility. It was first introduced with Windows 98 and included in all subsequent versions of Windows. It allows users to remove files that are no longer needed or can be safely deleted.

Removing unnecessary files, including temporary files, helps in speed up and improve the performance of hard drive and computer.

Lecture - 51

26/12/22

How to open MS disk cleanup:- It can be opened by the following steps :-

i) For Windows 7 and 8 :- Open the start menu. Click Program → Accessories → System Tools.

In system tools, click Disk Cleanup Utility.

ii) For Windows 9, 10, 11 :-

- Press Windows key + X to open the power user task menu.

- In the menu click the Run option.

- In the run text field type cleaning and press enter.

Disk fragmentation :- It is a result of disk-continuous application or file system storage where different parts of a given application or file are not stored in a sequential set of storage blocks on a storage device.

Disk defragmentation :- It is the process of consolidating fragmented files on the user's hard drive. The process of defragmentation moves the data blocks on the hard drive to bring all the parts of a file together.

Defragmentation reduces the system fragmentation increasing the efficiency of data retrieval and it improves the overall performance of the computer. It clears the storage and provides additional storage capacity.

Defragmentation is the opposite of fragmentation.

Lecture - 52

03/01/23

Binary digit - When counting, we only used digits 1 and 0. These are called binary digit which is normally abbreviated to bit. The letter A is represented with binary number 1100001 where as the Q is represented by the number 1001001. A collection of 8 bits came to be the smallest unit of storing data and named as byte.

-bit

nibble

span

row

A half of byte or 4 bits given the name nibble.

Name	Symbol	No. of bit .
bit	b	1
nibble	N	4
byte	B	8
kilobit	kb	1000
kilobyte	KB	1024 byte
Megabyte	mb	1024 KB
Gigabyte	Gb	1024 mb
Terabyte	Tb	1024 Gb

UNIT - 05Spreadsheet and Presentation Packages

Spreadsheet- A spread sheet is a computer program that can capture display and manipulate data arrange in rows and column. It is one of the most popular tool available with personal computers.

- * A spreadsheet is generally design to hold numerical data and short text string. In a spreadsheet program spaces, that holds items of data are called spreadsheet cells. These can be renamed to better reflect the data they hold.
- * A single spreadsheet can be used as a work sheet to compile data or multiple sheets can be combined to create an entire work book. Each column or row cell reference a value and is labeled according to its placement.
e.g- A₂, E₃, D₄

Spreadsheet controls- These are major a business accounting team uses to safeguard the integrity and accuracy in its financial record. It can rapidly detect and resolve errors and maintain the security of all data.

features of spreadsheet control program should include:

- i) Access control
- ii) Password can be used
- iii) Up-to date list of authorized users.
- iv) Strong encryption
- v) Outgoing data accuracy checks
- vi) Incoming data accuracy checks
- vii) Prevention of data loss / Corruption of data
- viii) Storage provision should be checked
- ix) Backup redundancy
- x) Data recovering processes should be placed
- xi) Easy to use and should be flexible.

Lecture-53

04/01/23

Cell - A cell can be thought as a box for holding data. A single cell is usually referenced by its row and column.

Rename a worksheet -

- i) Right click on the worksheet tab that you want to rename.
- ii) Select rename option
- iii) The text is now highlighted by a black box. Type the name of your worksheet.
- iv) Click anywhere outside of the tab. The worksheet is renamed.

Insert a new worksheet -

- i) Right click on the worksheet

- ii) Then click on Insert
- iii) Press enter key

Copy a worksheet / Move a worksheet :

- i) Right click on the worksheet that you want to copy or move
 - ii) Select move or copy option
 - iii) The move or copy dialog box appears.
 - iv) Click OK.
- Your worksheet is copied. It will have the same title as your original worksheet. but the title will include a version no.

Move a worksheet -

- i) Click on the worksheet that you want to move.
- ii) Drag the worksheet option icon until a black small arrow appears.
- iii) Release your mouse where you want to move the worksheet.

After the first twenty six column headings the next twenty six column headings are AA to AZ. The column headings are continue for a total of 16,384.

- * Columns headings are indicated by letters.
- * Row headings are indicated by numbers.
- * Worksheet are divided into columns, rows and cells.
- * A cell is the space where one column

and one row meet.

- * Row headings are numbers from one to 10,48,576

Lecture -54

06/01/23

Key

Description

Ctrl + PgUp Switch between worksheet tabs from left to right

Ctrl + Pgdown Switch between worksheet tabs from right to left.

Ctrl + shift + C (bracket) Unhides any hidden rows with in the selection.

Ctrl + L Displays the format cells dialog box.

Ctrl + 2 Apply or remove bold formatting

Ctrl + 4 Apply and remove underlining

Ctrl + 3 Apply and remove italic formatting

ctrl + 0

Hide the selected column.

ctrl + g

Hide the selected rows.

ctrl + h

Display the find and replace dialog box.

ctrl + n

Create a new blank work book.

ctrl + p

Display the print dialog box.

ctrl + s

Saves the active file.

ctrl + t

Display the create table dialog box.

ctrl + w

Close the selected work book windows.

ctrl + y

Repeat the last command or action if possible.

ctrl + z

Used for undo command or to delete the last entry.

Lecture- 54

18/01/23

Use of Insert function in MS Excel
If you want full control on your functions then click on insert function

• dialog box.

To achieve this go to the formula tab and select the first menu labeled as insert function. This dialog box contains all the functions that need to complete the financial analysis.

Autosum :- For quick and everyday task we use autosum function. Navigate to the formula tab and click the autosum function. Then click the options to show the hidden formulas like sum, average, count numbers, maximum, minimum.

Sum :- The sum function is the most known formula in excel. It usually aggregates the values from a selection of column or rows selected by user.

$$= \text{sum}(A_1 : A_4)$$

A	B	C	D
1			
2			
3			
4			

$$= \text{sum}(A_1 : C_1)$$

1

2

3

4

$$= \text{sum}(A_1 : A_7, A_{10}, A_{15} : A_{20})$$

Lecture - 55

20/01/23

Average - The average function gives averages of data such as the average number of share-

holders in a given share holding tool.

$$= \text{Average}(B_1 : B_4)$$

$$= [\text{sum}(B_1 : B_4)] / 4$$

Count :- The count function counts all cells in a given range that contains only numeric value.

count (value₁ [value₂])

Max and min :- The max and min functions help in finding maximum number and the minimum number in a range of values.

$$= \text{Max}[\text{value}_1, (\text{value}_2)]$$

$$= \text{Min}[B_5 : B_{20}]$$

Modulus :- The mod function works on the returning the remainder when a particular number is divided by divisor.

Lecture - 56

20/01/23

Power - The power() return the result of a number raised to a certain power. To find the power of 10 stored in A2 raised to 3. then we have to type =power(A2, 3)

Ceiling :- The ceiling() rounds a number upto its nearest multiple of significance

$$3.667 = 4$$

floor :- The floor() rounds a number down to the nearest multiple of significance.

$$3.667 = 3$$

Upper :- The upper() converts any text string in uppercase.

lower :- The lower() converts any text string into lower case.

proper :- The proper() converts any string in proper case i.e. the first letter in each word will be in upper case and all the others will be in lower case.

Now :- The now() gives current date and time.

Today :- The today() gives current date of the system.

DAY :- The day() gives current day of the system.

Lecture - 57

24/01/23

Powerpoint presentation :-

Powerpoint presentation works like slideshow to convey a message or a story and break it into slides.

Powerpoint are useful for both personal and professional use. There are few major fields where ppt is extremely useful.

Lecture - 58

24/01/23

There are some major fields where ppt is useful

- i) In education - With elearning and smart classes as a common mode of education today. Ppt can help in making education more interactive and attract students towards the modified version of study.
- ii) Marketing :- In the field of marketing ppt can be extremely important by using graphs, charts and numbers. we can show our data more clearly.
- iii) Business - To invite investors or to show the increase or decrease in profits we can use ppt.

Lecture - 59

25/01/23

- Q) What is multimedia and use of it.
A medium is plural of media. It is something that can be used for presentation of information

Lecture - 60Revision

1. Difference between system & software and application software.
2. Difference between linux and unix.

System softwareApplication software

* It is set of one or more program design to control the operation.	* It is set of one or more program design to solve a specific problem.
* It provides a platform to other software.	* It perform a group of tasks, function for benefit of user.
* It manages resources and helps to run hardware and application software.	* It perform specific task according to their type
* Runs when the system start and runs till the end.	* Runs when the user requires.
* Ex:- operating system, utility program, communication software etc.	* Ex:- Word processing, data base processing, graphics software etc.

2.

LinuxUnix

- * It is open source software operating system
 - * It is of multitasking, multi user computer operating system
- * Source code is not available to the general public.
 - * Source code is not available to the general public.
- * Used for personal computers, desktops, game development etc
 - * Used for servers, work-station, mainframes, and high end computers.
- * It is free.
 - * It is expensive.

Lecture- 61 30/01/23

Revision

What are the different file access method.
Describe it in detail.

There are two file access method at operating system level -

- i) Sequential Access
- ii) Random Access

i) Sequential access -

- * The operating system reads the file word by word in sequential access method of file accessing.
- * Sequential access files are used normally with sequential access storage media such as magnetic tape.
- * The sequential access mechanism is very easy to implement. It is the most basic way of file access.

Example - Editors and compilers frequently use this method to check the validity of the code.

ii) Random access -

- * Random access files are used normally with random access storage media such as magnetic or optical disk.
- * In the random access method, the files are considered as a sequence of blocks or records.

- * The benefit of this method is that we can access any block randomly.
- * It is also known as relative or direct access method.

Lecture - 62

31/01/23

Revision

Difference between OMR and OCR

OMR

- * OMR stands for optical mark reader.
- * OMR detects and collects the data from the pre-printed documents.
- * OMR may only use symbols.
- * OMR technology is more accurate than OCR.
- * It is easy to implement and use.
- * It allows for storing documents.

OCR

- * OCR stands for optical character recognition.
- * OCR scans and stores printed text as an image.
- * OCR may use any type of font, symbol or image.
- * OCR technology is less accurate than OMR.
- * It is complex to implement and use.
- * It doesn't allow storing documents.

* It depends on the position of marks.	* It depends on the shape of marks.
* It has abilities in the field of grading and tabulation.	* It is used to convert documents from printables mannequin to simple mannequin.
* It does not necessitate the use of a high level recognition engine.	* OCR requires a more powerful recognition engine.
* It needs timing tracks.	* It doesn't need timing tracks.

Lecture- 63

01/02/23

Revision

sc/ea/o

1. How can you insert chart and graph in ppt.
2. Explain different mathematical formulas that are used in MS Excel.
3. Following are the steps to insert chart / graph in ppt.
 - i) Select the slide where you want to include the chart / graph
 - ii) Go to the insert tab and, in the illustrations group, click chart / graph
A new window will open.

iii) Select the type of chart you want and click OK.

2. The different mathematical formula that are used in MS Excel are -

i) Sum:-

If we want to sum values of several cells quickly, we can use the SUM in excel for the mathematics category.

ii) Average :-

If we want to find the average of any data

Lecture- 64
03/02/23

Revision

Lecture - 65

03/02/23

Revision