

-:(Intro to ICT):-

Semester # 01:-

System Software & its
importance:-

System Software:-

System software is a type of software which is used to control and manage the computer hardware and develop a platform for running the other application resources.

-:Types :-

- Operating System.
- Device Drivers.
- Antivirus software.
- Disk Operating Software.
- Computer language translator.
- Firmware.
- Utilities Programs.
- Virtualization softwares.

(i) Operating System:-

An Operating system is a system software which provides an interface between user and computer. It is also manage the hardware and software resources.

Example:-

- Windows
- Linux
- Mac OS
- Android

(ii) Device Drivers:-

Device Drivers is a type of system software which enables the communications between hardware and operating system

Example:-

USB drivers, Printing Driver

Sound driver

(iii) Antivirus Software:-

Antivirus software is system software which is used to scan, detect, and delete viruses from a computer. It is also known as Anti-malware software.

Example:-

- Avast
- McAfee
- Kaspersky
- Norton
- AVG
- **Windows Defender:** In new version of Windows 7, Windows 10 and 11 Microsoft defender protects against viruses, Trojans and all types of malwares. It is also manage other Windows security features.

(iv) Disk Operating System:-

A DOS (Disk Operating System) is a type of system software that prepares a disk for reading and writing data in computer. It runs from a disk driver. It provides features to control hardware devices like disk devices, Printers, Modems, etc.

Example:-

- MS DOS
- CP/M & PC-DOS
- Apple DOS
- Dr. DOS

(v) Computer Language translators:-

Computer only understand machine language, and software or set of instruction written in high-level language, so it

must be converted into machine language by using computer language translator. It is used to convert the instructions into machine code.

Examples:-

- Compiler
- Interpreter
- Assembler

(vi) Firmware:-

It is pre-installed low-level software that controls a device's basic functions.

These are operational softwares installed on computer's motherboard that manage and control all of device operations.

Examples:-

- BIOS (Basic Input/Output System) chip
- UEFI (Unified Extensible Firmware Interface) chips.

vii) Utilities Programs:-

Utilities software is a third-party software which is used for maintenance and finding computer defects. These software ensures computer running is efficiently and securely.

Task:-

- Disk clean-up
- System Scan
- System Backup & Recovery.

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Computer system software, its uses, its importance & its disadvantages:-

System software is very useful for our computer system.

It manages all other applications resources and hardware.

-:Uses:-

Hardware:-

System software is important because it helps run the computer's hardware and systems. For example, An operating system is the most important part of all software activity, it is needed to run all other programs. Without an operating system we cannot communicate with the computer.

System software manages the all Hardware device like, I/O devices,

Communication devices etc.

(ii) Resources Management:-

Resources means of Memory / storage management and processing management. System software manager the computer's memory and processes and all of its software and hardware.

System software ensures that blocks of memory space are properly manage and allocated.

Operating systems is a system software that responsible for managing the various processes that are running on a computer.

(iii) User Interface:-

The user interface (UI) is the point of human-computer interaction and communication in a device.

Operating System provides a user friendly interface between computer and user. This can include display screen, Keyboard, a mouse, icons etc. It is also includes the overall appearance of a desktop.

(iv) System Security:-

System software is also provides a solid security facility, by the means of securing of data. System software provides the protection of data or information and property from theft, viruses, Hackers.

(v) Application Support:-

System software manages the computer itself. It runs in the background, for maintaining the computer's basic functions and the application supportance.

system. Essentially, system software provides a platform for application software to be run on top of.

(vi) Customization & Configuration:-

System software allows users to personalize their computers interface according to their requirements. System software is allows user to configure their computer setting, and the various setting, like security, Networks. System software provides tools for installing, updating and managing software applications on the computer.

Operating System & its importance OS:-

An operating system is a system software that manages the computer hardware and provides services for computer programs. It provides an interface b/w user and computer.

- Importance :-

The importance of an operating system lies in several key aspects:

1:- Resources Management :-

The operating system allocates and manages resources such as CPU time, memory and storage by various applications.

2:- Hardware Abstraction:-

Operating system abstracts complex hardware details.

provides a standardized interface for software developers. This abstraction or management allows applications to run on different types of hardware without modification.

3:- User Interface:-

Operating systems provide a user interface, enabling users to interact with the computer. This can be through a graphical user interface, Command Line interface or a combination of both.

4:- File System Management:-

The operating system organizes and manages files on storage devices, providing a structure and access control to ensure data integrity.

and security.

5:- Process Management :-

An operating system oversees the execution of processes, allowing multiple applications to run currently while managing their interactions.

6:- Security :-

Operating Systems implement security features to protect data and system resources from unauthorized access and virus software.

7:- Error Handling :-

The operating system handles errors and exceptions, preventing them from causing system failures and providing mechanisms for recovery.

-: Types of OS :-

Here are many types of Operating Systems.

(i) Batch OS:-

Batch Operating System process data in batches like punch cards without user interactions. It is commonly used for repetitive tasks with minimal variations.

(ii) Single User Single Task OS:-

It supports only one user and one task at a time. The older personal computers are the example of single user single task OS.

(iii) Single User Multiple Task OS:-

This operating system allows a single user to execute multiple task, but

not on the same time.

The modern personal computer is example of Single user multi-tasking OS.

(iv) Multiple User Parallel processing OS:-

These type of operating systems handles the multiple users with each other user interacting independently.

The GPU is used in this type of operating system. It supports parallel processing for improved performance.

v) Multi-user Multi-task OS:-

This type of OS enables the multiple users to run multiple tasks at a time.

It is commonly used in networked environment and server systems.

(v) Embedded OS:-

The embedded operating system designed for specific embedded system to perform only one specific task, like applications or industrial machines. It optimized for the requirements of embedded devices.

vii) Real time OS:-

The real time OS is responds to input or events within a specific time frame. It is critical for applications where timing is crucial, such as control system.

viii) Centralized OS:-

Centralized operating systems manages resources from a single point, often

in a mainframe or server.

• Distributed OS:-

Distributed OS is

distributes the tasks across

multiple computers connected

by a network.