॥ ओइम् ॥

DAV PUBLIC SCHOOL DVC, MTPS, BANKURA, W.B.

**Study Materials
&
Assignment
For the Session: 2020-21**

NAME _____

CLASS/ SECTION **VI** _____

ROLL NO- _____

Ch -> 1. Let Us Explore
- **Our Computer Operating System, Application Software**

STUDY MATERIALS

The concept of hardware and software is explained in detail below −

Hardware

The term hardware refers to mechanical device that makes up computer. Computer hardware consists of interconnected electronic devices that we can use to control computer's operation, input and output. Examples of hardware are CPU, keyboard, mouse, hard disk, etc.

Hardware Components

Computer hardware is a collection of several components working together. Some parts are essential and others are added advantages. Computer hardware is made up of CPU and peripherals as shown in image below.
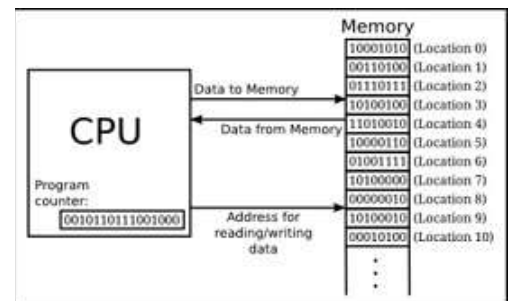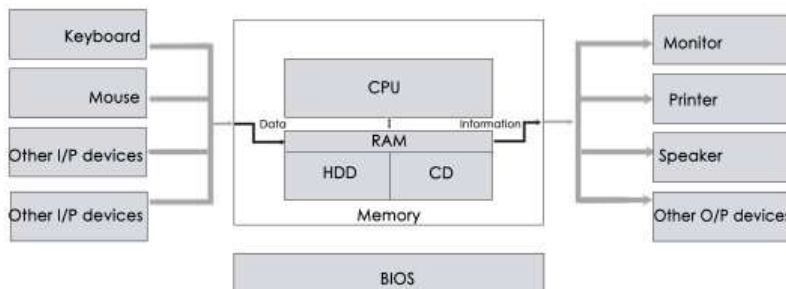
Software

A set of instructions that drives computer to do stipulated tasks is called a program. Software instructions are programmed in a computer language, translated into machine language, and executed by computer. Software can be categorized into two types −

- System software
- Application software

System Software

System software operates directly on hardware devices of computer. It provides a platform to run an application. It provides and supports user functionality. Examples of system software include operating systems such as Windows, Linux, Unix, etc.

Application Software

An application software is designed for benefit of users to perform one or more tasks. Examples of application software include Microsoft Word, Excel, PowerPoint, Oracle, etc.

Differences between Software and Hardware are sorted out below −

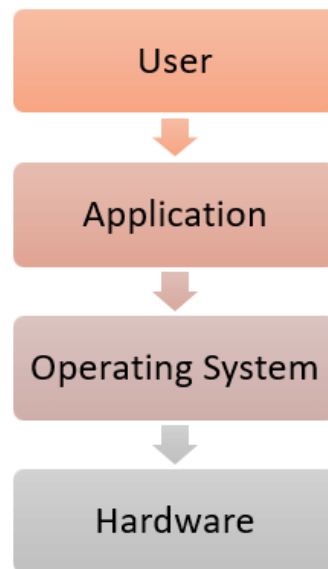| Sr.No.	Software	Hardware
1	It is a collection of programs to bring computer hardware system into operation.	It includes physical components of computer system.
2	It includes numbers, alphabets, alphanumeric symbols, identifiers, keywords, etc.	It consists of electronic components like ICs, diodes, registers, crystals, boards, insulators, etc.
3	Software products evolve by adding new features to existing programs to support hardware.	Hardware design is based on architectural decisions to make it work over a range of environmental conditions and time.
4	It will vary as per computer and its built-in functions and programming language.	It is mostly constructed for all types of computer systems.
5	It is designed and developed by experienced programmers in high-level language.	The hardware can understand only low-level language or machine language.
6	It is represented in any high-level language such as BASIC, COBOL, C, C++, JAVA, etc.	The hardware works only on binary codes 1's and 0's.
7	The software is categorized as operating system, utilities, language processor, application software, etc.	The hardware consists of input devices, output devices, memory, etc.

History Of OS

- Operating systems were first developed in the late 1950s to manage tape storage
- The General Motors Research Lab implemented the first OS in the early 1950s for their IBM 701
- In the mid-1960s, operating systems started to use disks
- In the late 1960s, the first version of the Unix OS was developed
- The first OS built by Microsoft was DOS. It was built in 1981 by purchasing the 86-DOS software from a Seattle company
- The present-day popular OS Windows first came to existence in 1985 when a GUI was created and paired with MS-DOS.

Features of Operating System

Here is a list commonly found important features of an Operating System:

- Protected and supervisor mode
- Allows disk access and file systems Device drivers Networking Security
- Program Execution
- Memory management Virtual Memory Multitasking
- Handling I/O operations
- Manipulation of the file system
- Error Detection and handling
- Resource allocation
- Information and Resource Protection

What is a Kernel?

The kernel is the central component of a computer operating systems. The only job performed by the kernel is to the manage the communication between the software and the hardware. A Kernel is at the nucleus of a computer. It makes the communication between the hardware and

software possible. While the Kernel is the innermost part of an operating system, a shell is the outermost one.
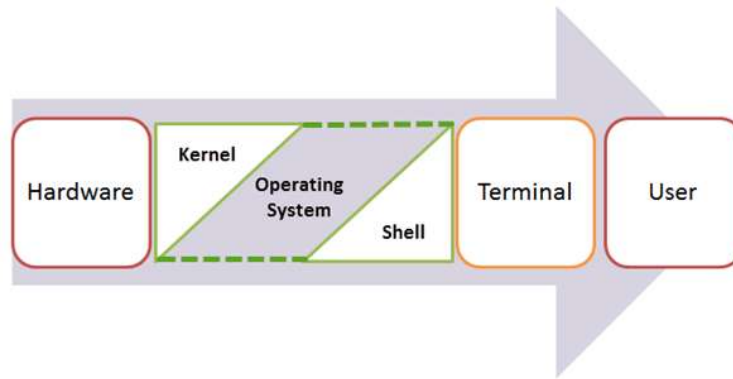
Features of Kennel

- Low-level scheduling of processes
- Inter-process communication
- Process synchronization
- Context switching

Types of Kernels

There are many types of kernels that exists, but among them, the two most popular kernels are:

1.**Monolithic**

A monolithic kernel is a single code or block of the program. It provides all the required services offered by the operating system. It is a simplistic design which creates a distinct communication layer between the hardware and software.

2. Microkernels

Microkernel manages all system resources. In this type of kernel, services are implemented in different address space. The user services are stored in user address space, and kernel services are stored under kernel address space. So, it helps to reduce the size of both the kernel and operating system.

Functions of an Operating System

Function of an Operating System

In an operating system software performs each of the function:

1. **Process management**:- Process management helps OS to create and delete processes. It also provides mechanisms for synchronization and communication among processes.

2. **Memory management:-** Memory management module performs the task of allocation and de-allocation of memory space to programs in need of this resources.

3. **File management**:- It manages all the file-related activities such as organization storage, retrieval, naming, sharing, and protection of files.

4. **Device Management**: Device management keeps tracks of all devices. This module also responsible for this task is known as the I/O controller. It also performs the task of allocation and de-allocation of the devices.

5. **I/O System Management:** One of the main objects of any OS is to hide the peculiarities of that hardware devices from the user.

6. **Secondary-Storage Management**: Systems have several levels of storage which includes primary storage, secondary storage, and cache storage. Instructions and data must be stored in primary storage or cache so that a running program can reference it.

7. **Security**:- Security module protects the data and information of a computer system against malware threat and authorized access.

8. **Command interpretation**: This module is interpreting commands given by the and acting system resources to process that commands.

9. **Networking:** A distributed system is a group of processors which do not share memory, hardware devices, or a clock. The processors communicate with one another through the network.

10. **Job accounting**: Keeping track of time & resource used by various job and users.

11. **Communication management**: Coordination and assignment of compilers, interpreters, and another software resource of the various users of the computer systems.

Types of Operating system

- Batch Operating System
- Multitasking/Time Sharing OS
- Multiprocessing OS
- Real Time OS
- Distributed OS
- Network OS
- Mobile OS

Batch Operating System

Some computer processes are very lengthy and time-consuming. To speed the same process, a job with a similar type of needs are batched together and run as a group.

The user of a batch operating system never directly interacts with the computer. In this type of OS, every user prepares his or her job on an offline device like a punch card and submit it to the computer operator.

Multi-Tasking/Time-sharing Operating systems

Time-sharing operating system enables people located at a different terminal(shell) to use a single computer system at the same time. The processor time (CPU) which is shared among multiple users is termed as time sharing.

Real time OS

A real time operating system time interval to process and respond to inputs is very small. Examples: Military Software Systems, Space Software Systems.

Distributed Operating System

Distributed systems use many processors located in different machines to provide very fast computation to its users.

Network Operating System

Network Operating System runs on a server. It provides the capability to serve to manage data, user, groups, security, application, and other networking functions.

Mobile OS

Mobile operating systems are those OS which is especially that are designed to power smartphones, tablets, and wearables devices.

Some most famous mobile operating systems are Android and iOS, but others include BlackBerry, Web, and watchOS.

Difference between Firmware and Operating System

Firmware	Operating System
Firmware is one kind of programming that is embedded on a chip in the device which controls that specific device.	OS provides functionality over and above that which is provided by the firmware.
Firmware is programs that been encoded by the manufacture of the IC or something and cannot be changed.	OS is a program that can be installed by the user and can

	be changed.
It is stored on non-volatile memory.	OS is stored on the hard drive.

Difference between 32-Bit vs. 64 Bit Operating System

Parameters	32. Bit	64. Bit
Architecture and Software	Allow 32 bit of data processing simultaneously	Allow 64 bit of data processing simultaneously
Compatibility	32-bit applications require 32-bit OS and CPUs.	64-bit applications require a 64-bit OS and CPU.
Systems Available	All versions of Windows 8, Windows 7, Windows Vista, and Windows XP, Linux, etc.	Windows XP Professional, Vista, 7, Mac OS X and Linux.
Memory Limits	32-bit systems are limited to 3.2 GB of RAM.	64-bit systems allow a maximum 17 Billion GB of RAM.

The advantage of using Operating System

- Allows you to hide details of hardware by creating an abstraction
- Easy to use with a GUI
- Offers an environment in which a user may execute programs/applications
- The operating system must make sure that the computer system convenient to use
- Operating System acts as an intermediary among applications and the hardware components
- It provides the computer system resources with easy to use format
- Acts as an inter-mediator between all hardware's and software's of the system

Disadvantages of using Operating System

- If any issue occurs in OS, you may lose all the contents which have been stored in your system
- Operating system's software is quite expensive for small size organization which adds burden on them. Example Windows
- It is never entirely secure as a threat can occur at any time

Q1. Fill in the blanks

    a. _____ is an operating system.

    b. _____ can only be read. It is a _____ memory device.

    c. Voice recognition software take inputs in the form of _____.

    d. The control panel lets you _____ or _____ a program from your computer.

    e. A table can be inserted using _____ and _____table options on Insert tab.

    f. A table is a grid of _____ and _____

    g. The main document contains the _____ part of the letter.

    h. The recipient list is the list of _____ that are to be included in the mail merge.

    i. In mail merge, last step is to _____.

    j. _____ tab have mail merge tool.

Q2. Name them :-

    a. two types of memory.

    b. any two mouse pointers.

    c. any two tasks of Disk Cleanup.

    d. two types of computers.

    e. latest use of computer.

Q3. Identify the following:-

a)

b)

c)

Q4. Match the following:-

a. Adding a program	Super Computer
b. Voice recognition	Taskbar
c. Fastest Computer	Hard disk drive
d. Secondary Storage	Latest computer application
e. RAM	Control Panel
f. System tray	Primary Memory

Q5. Answer the following questions

a. Define 'row' and 'column'.

_____

_____

b. What is the use of split cells option?

_____

_____

c. What is recipient's list?

_____

_____

d. What is an operating system?

ASSIGNMENT-2

1. **Answer the following questions :**

    a) **What is a Software? Name the different types of Software.**

    _____
    _____

    b) **Define System Software and Application Software.**

    _____
    _____

    c) **What is the difference between Hardware and Software ?**

    _____
    _____

2. **Circle the words that are software :**

Printer   Keyboard   MS Office   Microphone   **Norton   Mouse   Road Rash   Windows Media Player**

3. **Name the Application Software you will use for the following :**

    a. To write a letter to your friend _____
    b. To draw a scenery   _____
    c. To design the page of your school magazine _____

Follow the instructions below:

1. Open a blank slide in Impress and do the following.

2. Save the presentation as: *Computer.odp* on the desktop.

PRACTICAL ASSIGNMENT-2

Follow the instructions below:

1. Create a OpenOfficeImpress.org presentation in Input and Output device of Computer System.

2. Create a OpenOfficeImpress.org presentation with animation on Types of Printer .

3. Create presentation with Software

4. Crate a presentation with Operating System and Application Software .
5. Save this presentation as: *MyFirstpresentation.odp* on desktop.