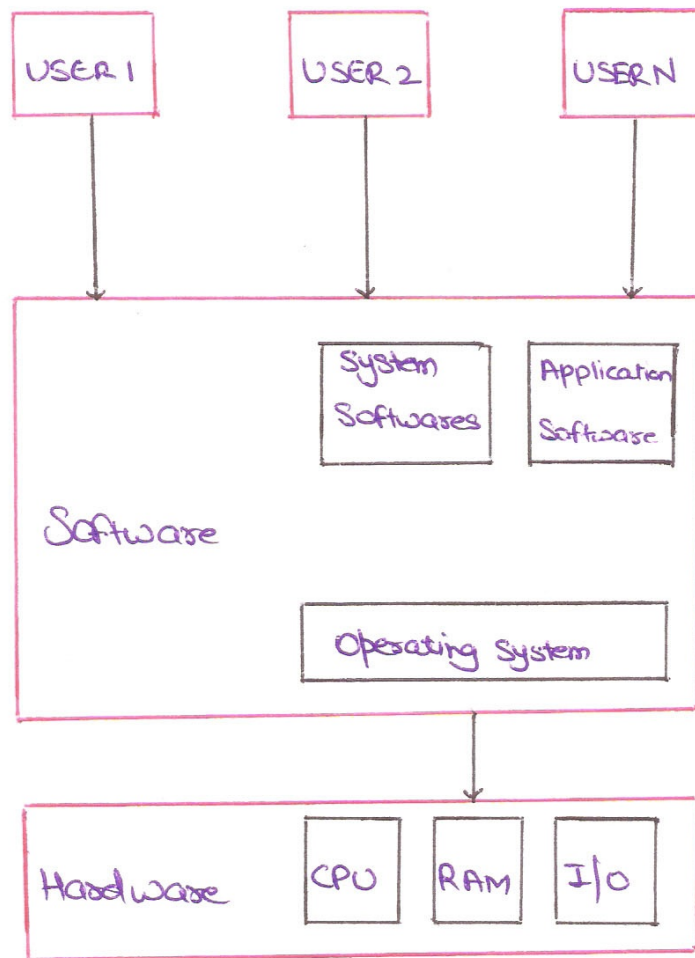


Operating System Functions and Characteristics:-

An operating system is a program that acts as an interface between user and the computer hardware and controls the execution of all kind of programs.



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Functions of an Operating System :-

- Memory Management
- Device Management
- Security
- Job Accounting
- Coordination between other software and users.
- process Management
- file Management
- Control over System Performance
- Error Detection aids

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Memory Management :- It refers to Management of primary Memory. Main memory is a large array of words or bytes where each word or byte has its own address.

Main Memory provides a fast storage that can be accessed directly by the CPU. For a program to be executed, it must be in the main memory.

- Operating System keeps track of primary memory, i.e. what part of it are in use by whom, what part are not in use.
- In multiprogramming, the OS decides which process will get memory when and how much.
- Allocates the memory when a process requests it to do so.
- De-allocates the memory when a process no longer needs it or has been terminated.

Process Management :- In this OS decides which process gets the processor when and for how much time. This function is called Process Scheduling. An Operating System does the following activities for processor Management:

- ⇒ Keeps track of **processor and status of process**. The program responsible for this task is known as **Traffic Controller**.
- ⇒ Allocates the processor (CPU) to a process.
- ⇒ De-allocates processor when a process is no longer required.



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Device Management :- An operating System manages device communication via their respective device-drivers. OS does

- ⇒ Keep tracks of all devices. The program responsible for this task is known as the I/O Controller.
- ⇒ Allocates the device in the most efficient way.
- ⇒ De-allocates devices.

File Management :- A file system is normally organized into directories for easy navigation and usage. These directories may contain files and other directories.

OS does

- ⇒ Keep track of information, location, users, status etc. The collective facilities often as known as File System.
- ⇒ Decides who gets the Resources.
- ⇒ Allocates the resources.
- ⇒ De-Allocates the Resources.

Security :- By Means of password and similar other techniques, it prevents unauthorized Access to programs and data.

Control over System Performance :- Records delay between Request for a Service and Response from the System.



Job Accounting:- Keeps track of time and resources used by various jobs and users.

Error Detection Aids:- Production of dumps, traces, error messages and other debugging and error detecting Aids!

Co-ordination between other software and users:- Coordination and assignment of Compilers, Interpreters, assemblers and other software to the various users of the Computer Systems.



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