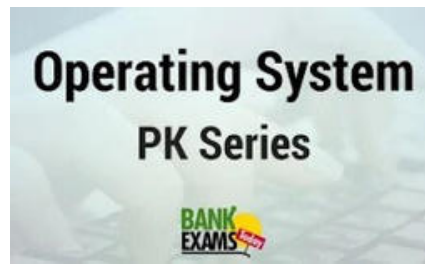


Operating System - Part 1

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Hello Readers,



We're starting with operating systems from today. It'll be covered in multiple articles. OS is considered to be an easy portion comparatively which can fetch you good marks. Please feel free to raise your queries in comments section.

==>> This article is a part of [PK Series for SO IT](#)

Operating System (OS)

Operating system is an essential component of the system software in a computer system. Its a program/set of programs that acts as intermediary between a user and computer hardware. OS can be found on almost all modern computing devices- from mobile phones to video game consoles to web servers to supercomputers. E.g. MS DOS, UNIX, Windows 7, Windows 10, Ubuntu etc

Functions of an Operating System

1. Boot up the computer

The process of starting or restarting a computer is known as booting. A cold boot is when you turn on a computer that has been turned off completely. A warm boot is the process when you restart the computer using OS i.e restart by Ctrl+Alt+Del or boot from sleep mode.

2. Basic computer tasks

It performs basic tasks such as managing the peripheral devices. These days most OSs use support plug and play feature i.e a printer for example will be detected and configured automatically without any manual intervention.

3. Provides a user interface

Two main types of UIs are: command line and GUI. With command line, user types commands on terminal to performs various tasks. With GUI, user interacts using a mouse, icons and menus.

4. Handling of System Resources

OS handles system resources such as computer's memory and sharing of CPU time by various applications or peripheral devices. It ensures each application gets necessary resources it needs to perform effectively.

5. File management

OS handles the organization and tracking of files and directories. It keeps track of user's activity as far as file creation, updation, deletion or movement is concerned.

Two main types of file systems are:

- **File Allocation Table (FAT/FAT32)** - It uses a file allocation table maintained by OS on a hard disk that provides a map of clusters (logical units of storage) that a file has been stored in.
- **New Technology file system (NTFS)** - File system introduced by Microsoft. It also allows permissions (read, write, execute) to be set for individual files and directories.

Types of Operating Systems

1. Single user, single task OS

It is designed in a way that one user can effectively do one thing at a time. E.g. - Palm OS for palm handheld devices.

2. Single user, multi tasking OS

It allows a single user run several programs at the same time. Personal computers/ Laptops are mostly used with this kind of OS. E.g - MS windows or Apple's MacOS platforms. (You see you can write a blog and listen to music side by side when the downloading is on at back end- multi tasking!!!)

3. Multi user OS

It allows many different users to take advantage of computer's resources simultaneously. OS must allocate resources in a way that a problem with one user doesn't affect the entire community of users. Main purpose is to maximize the resources. E.g. Mainframe systems.

4. Real time OS

It controls the environment as it has a data processing system. Time taken by system to respond to an input and display the result is called a response time. It uses an advanced algorithm for scheduling.

5. Time sharing OS

It enables many people located at various terminals, to use the system, at a particular time. In other words, its a logical extension of multiprogramming. The main purpose is to minimize response time.

6. Distributed OS

Distributed systems use a number of central processors to serve multiple real time applications and different users. Data processing jobs are distributed among processors.

7. Network OS

This OS runs on a server. It is responsible for managing data, users, groups, security, applications and other networking functions. It allows shared file and printer access among multiple computers in a network. E.g. Microsoft Windows Server 2003/2008,

oivell NetWare.

8. Embedded OS

Its a specialized OS for use in computers which are built into larger systems. It is part of different kind of machine. E.g. - Computers in cars, traffic lights, GPS navigation system, elevators, ATMs etc. As compared to a general purpose OS, embedded OS has limited functions but that single function/application is crucial to its operation.

9. Mobile OS

Its an OS specially designed to run on mobile devices such as smartphones, PDAs. E.g.- Android, iOS etc.

Interesting fact about OS

60% of windows vista's code was rewritten due to a lot of bugs and internal errors before it was properly released. (*Ha, Still It was the worst ever I used*)

