OPERATING SYSTEMS

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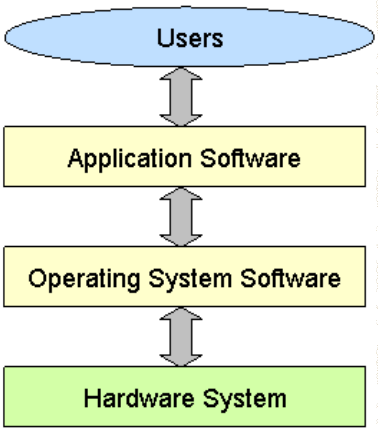
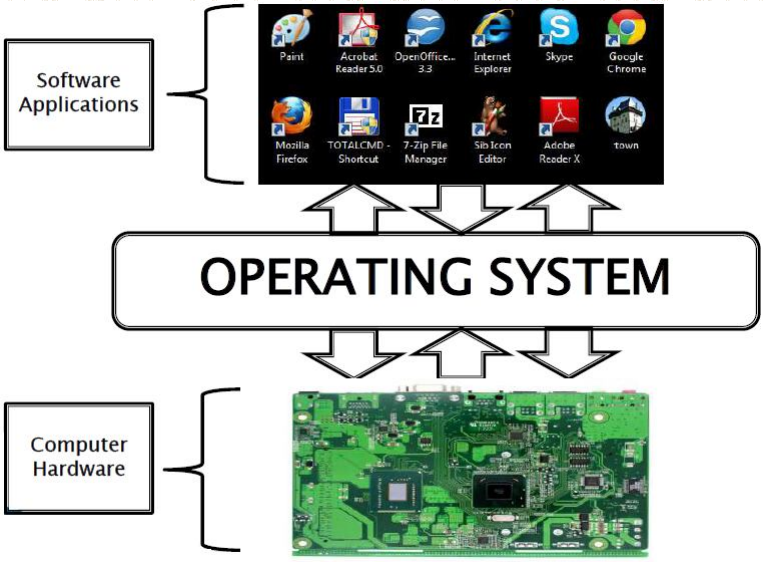
What is operating system?

- An operating system (OS) is a collection of software that manages computer hardware resources
- Without a computer operating system, a computer would be useless
- The operating system acts as a Interface Between the user and computer hardware

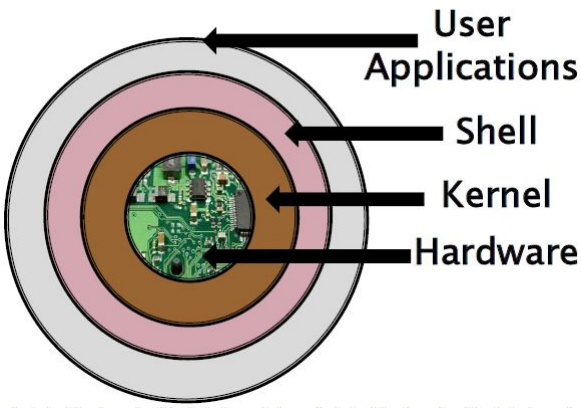




DEVICES THAT USE OS

- Computers
- Mobile phones
- Smart televisions
- Video game consoles
- ATM

Os Architecture



Operations Of OS

- Process Management
- Memory Management
- Network Management
- Device Management
- File Management
- Protection and Security

Process Manager

- Allocate resources to processes
- Enable processes to share and exchange information
- Protect the resources of each process from other processes
- Enable synchronisation among processes

Memory Manager

- Keeps track of the status of each memory location
- Determines how memory is allocated among competing processes, deciding which gets memory
- Tracks when memory is freed or unallocated and updates the status

Network Manager

- The network manager manages the relationship between the operating system and the network(s) that it is connected to.

Device Manager

- The device manager is responsible for detecting and managing devices
- Performing power management
- Device drivers allow user applications to communicate with a system's devices

File Manager

- Provides a user interface to manage files and folders
- Creating and deleting files and directories

Protection and Security

- A mechanism for controlling access of processes (or users) to resources defined by the OS
- A defense of the system against internal and external attacks (Denial-of-service, worms, viruses, identity theft, theft of service)

Types Of Operating System

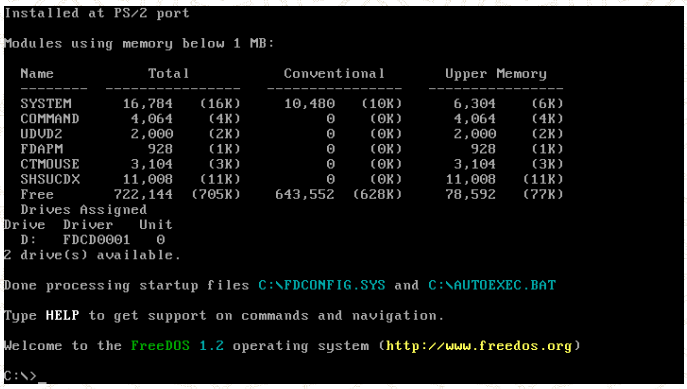
- UI (Command-line / Graphical)
- Single/Multi User
- Single/Multi Tasking
- Single/Multi Processing

User Interface

- Command-line **interface** (CLI)

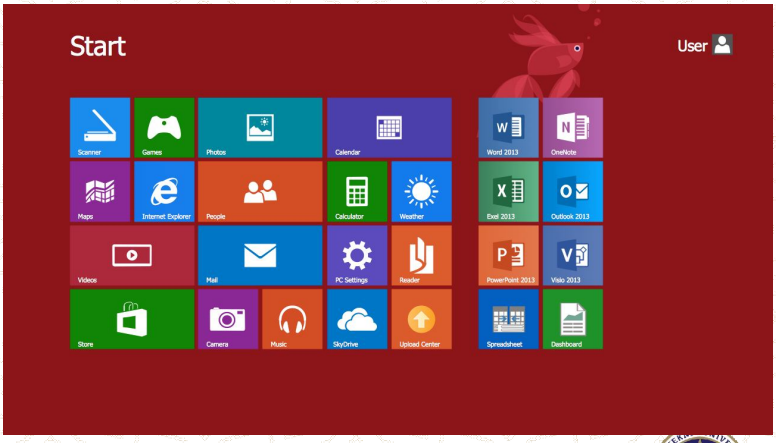
MSDOS

(MicroSoft Disk Operating System)



User Interface

- GUI - Graphical User Interface



MULTI/SINGLE-USER OPERATING SYSTEMS

SINGLE USER

- Home computers
- Has one **user** at a time
  - Windows 95
  - **PalmOS (PDA)**

MULTI USER

- Known as network operating systems
- Allow access to the computer system by more than one user
  - UNIX
  - Windows Server XXX
  - **Android** 5.0(Lollipop) and up

SINGLE/MULTI TASK OPERATING SYSTEMS

- SINGLE TASKING : Only one application window runs the thread in the background
  - Windows 3.1
  - Windows 95
- MULTI TASKING: Allowing multiple software processes to run at the same time.
  - Unix
  - Windows XP
  - Windows Vista

MULTI PROCESSING OPERATING SYSTEMS

- An operating system capable of supporting and utilizing more than one central processing units (CPU) within a single computer **system**.
- Linux
- Unix
- Windows 2000