Computer Fundamental

Lecture 3
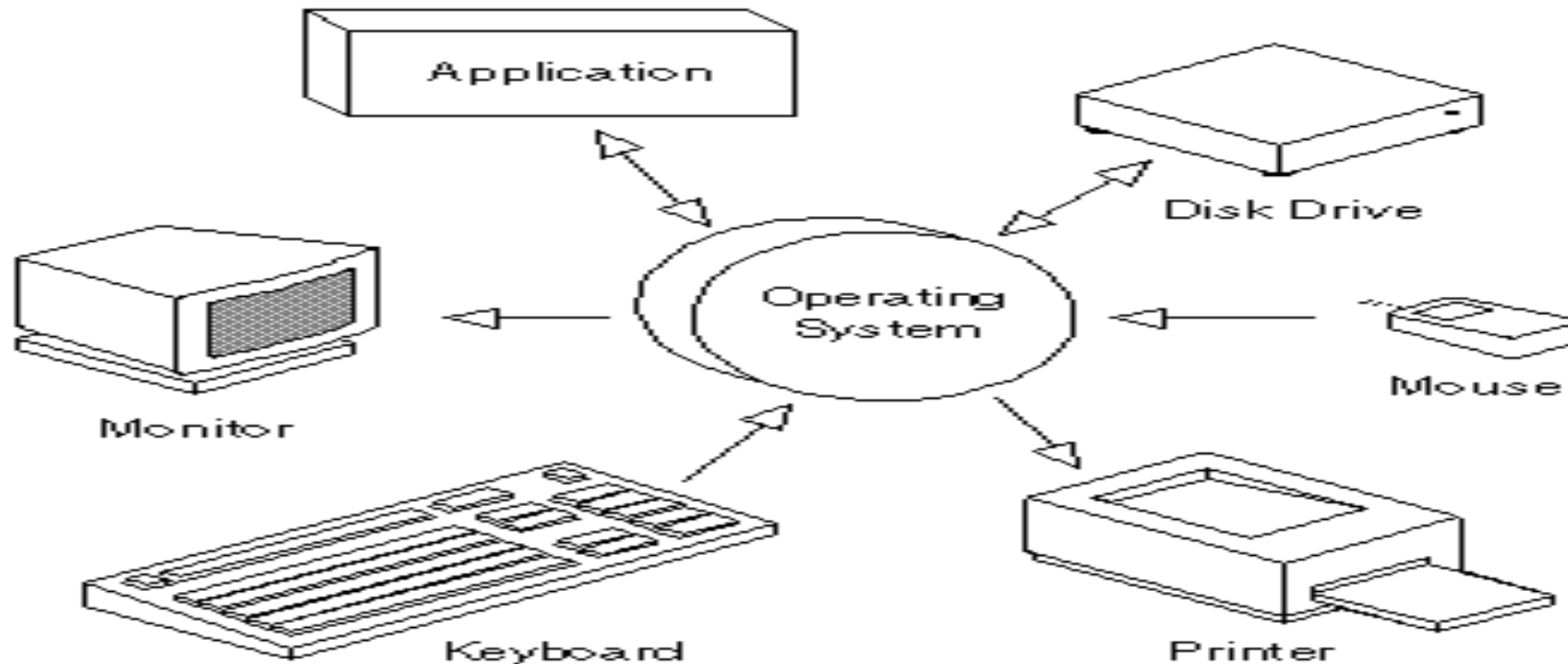
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What is Operating System

- The OS is one kind of **system software** that **controls** the **system' s hardware** and **interacts** with the **user and application software.**

Types of Operating Systems

Operating system s can be organized into four major types:
- real-time,
- single-user/single-tasking,
- single-user/multi-tasking, and
- multi-user/multi-tasking.

Real-Time Operating Systems

- A real -time operating system is a very fast, relatively small OS.

- Real-time OSs are often also embedded OSs, when they are built into the circuitry of a device and are not loaded from a disk drive.

- Example: eCos, VxWorks, RTLinux

Single-User/Single-Tasking Operating Systems

- An operating system that allows a single user to perform just one task at a time is a single-user/single-tasking operating system.

- Example: MS-DOS

Single-User/Multitasking Operating Systems

- A single-user/multi tasking operating system is one that allows a single user to perform two or more functions at once.
- It takes a special operating system to keep two or ore tasks running at once.

- Example: Windows - 98, Android, Symbian, IOS.

Multi-User/Multitasking Operating Systems

- A multi-user/multitasking operating system is an operating system that allows multiple users to use programs that are simultaneously running on a single network server; called a terminal server.

Examples of multi-user OSs include
UN IX, VMS, and mainframe
operating systems such as MVS.
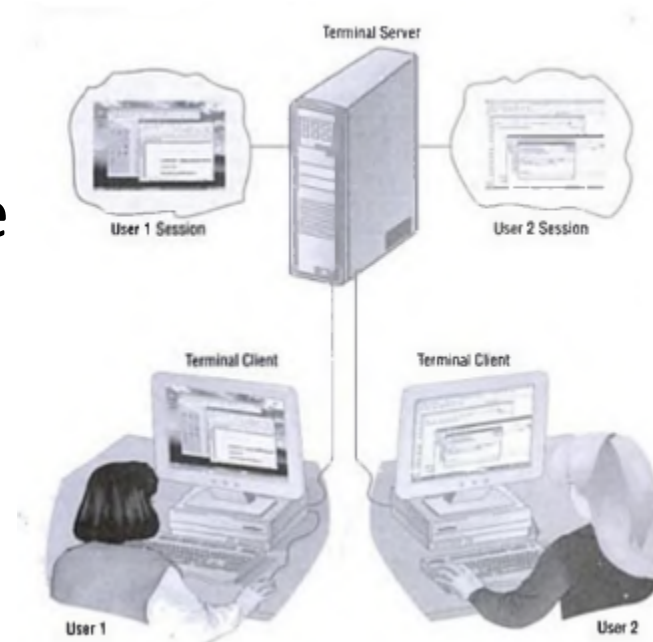
Providing a User Interface

- When we work on a computer; we see and use **a set of items on the screen**. Taken together; these items are called the user interface.

- The two most common types of user interfaces are
  - graphical and
  - command line

Graphical User Interfaces

- Most current operating systems, including all versions of Windows, the Macintosh operating system, OS/2, and some versions of UNIX and Linux, provide a **G**raphical **U**ser **I**nterface (GUI).

- so called because you use a mouse (or some other pointing device) **to work with graphical objects** such as windows, menus, icons, buttons, and other tools.

Graphical User Interfaces

- These graphical tools all represent different types of commands; the GUI enables you **to issue commands to the computer** by using visual objects instead of typing commands.

- This is one of the key **advantages** of a graphical user interface; it **frees you** from **memorizing and typing text commands.**

Enhancing an OS with Utility Software

- Backup Utilities
- Antivirus
- Firewall
- Intrusion Detection
- Screen Savers

Virus

- A virus is a parasitic program that can delete or scramble files or replicate itself until the host disk is full.

- computer **viruses can be transmitted** in numerous ways
  - downloading files over the Internet or
  - reusing old diskettes that may be infected.

Antivirus

- An antivirus utility can examine the contents of a disk or RAM for hidden viruses and files that may act as hosts for virus code.

- Effective antivirus products not only detect and remove viruses; they also help you recover data that has been lost because of a virus.