

# Types of Systems Software

Tags: Operating System, RAM, Hardware, API, Hardware Driver, Middleware, Utility Programs

*There are 3 types of systems software:*

- OS-operating system
- Utility Programs
- Middleware

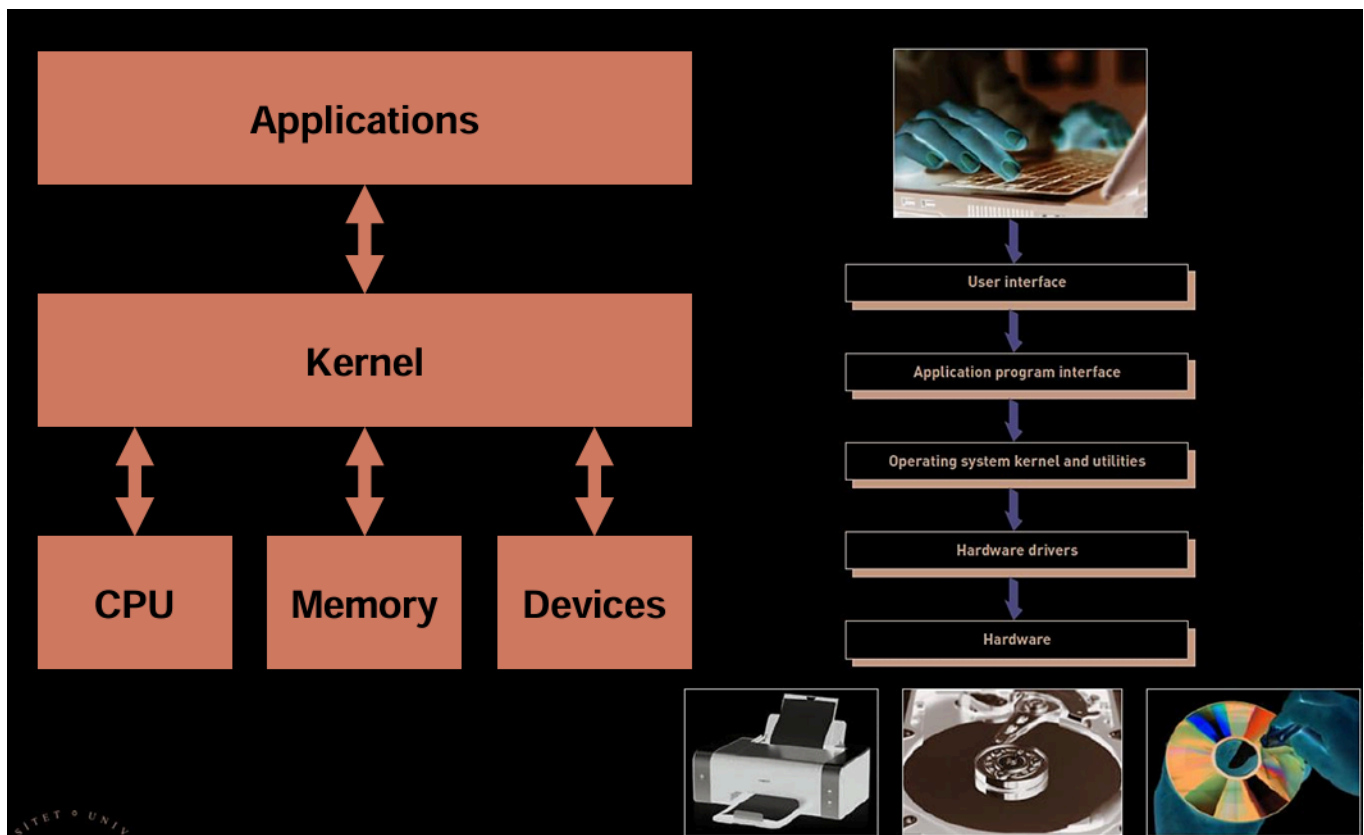
## Operating System(OS)

*A set of programs that control computer hardware and acts an interface with application programs*

## Combinations of OSs, Computers and Users

- single computer with a single user
- single computer with multiple simultaneous users
- multiple computers with multiple users
- special-purpose computers

## Role of Operation System



**Hardware Drivers** - to run any program or hardware

## Kernel(internal of seed-tum)

- \*core(heart) of OS
- *controls the **most critical** processes of OS*
- Ties all of the OS components together and regulates other programs
- Basically connects all of the components of OS

## Operating System Activities

- controlling common computer hardware functions
- providing a user interface and input/output management
- providing a degree of **hardware independence**
- managing system **memory**
- managing processing **tasks**
- providing **networking** capability
- controlling **access** to system resources
- managing **files**

1. **controlling common computer hardware functions** - get input from keyboard or another input device.

2. **providing user interface and input/output management** - allows individual to access and interact with the computer system
3. **Hardware independence** - application program interface (**API**) a set of programming instructions and standards for one software program to access and use the services of another software program.
4. **Management of Memory** - allows the computer to execute program instructions effectively and to speed processing - *virtual memory* - if your RAM capacity is not enough, it gives some space.
5. **Managing processing tasks**
  - multiuser - two or more users run programs at the same time on one computer
  - multiprocessing - run a program on more than one CPU
  - multitasking - more than one program run concurrently
  - multithreading - different threads of a single program run concurrently.
6. **Networking Capability** - allows computers in a network to send and receive data and share computing resources
7. **Access to system resources and security** - provide protection against unauthorized access to the user's data and programs
8. **Managing Files** - ensures that files in secondary storage are available when needed (protect files from access by unauthorized users)