UNIT 1
AN INTRODUCTION TO OPERATING SYSTEMS

Application software performs specific task for the user.
System software operates and controls the computer system and provides a platform to run application software.

An **operating system** is a piece of software that manages all the resources of a computer system, both hardware and software, and provides an environment in which the user can execute his/her programs in a convenient and efficient manner by hiding underlying complexity of the hardware and acting as a resource manager.

Why OS?
1. What if there is no OS?
    a. Bulky and complex app. (Hardware interaction code must be in app's code base)
    b. Resource exploitation by 1 App.
    c. No memory protection.
2. What is an OS made up of?
    a. Collection of system software.

An operating system function -
- Access to the computer hardware.
- interface between the user and the computer hardware
- **Resource management (Aka, Arbitration) (memory, device, file, security, process etc)**
- **Hides the underlying complexity of the hardware. (Aka, Abstraction)**
- facilitates execution of application programs by providing isolation and protection.
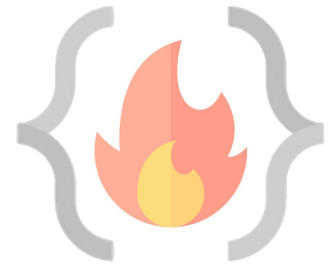

User

| Application programs |
| Operating system |
| Computer hardware |

The operating system provides the means for proper use of the resources in the operation of the computer system.

LEC-2: Types of OS

OS goals –

- Maximum CPU utilization

- Less process starvation

- Higher priority job execution

Types of operating systems –
-    Single process operating system   [MS DOS, 1981]
-    Batch-processing operating system   [ATLAS, Manchester Univ., late 1950s – early 1960s]
-    Multiprogramming operating system   [THE, Dijkstra, early 1960s]
-    Multitasking operating system   [CTSS, MIT, early 1960s]
-    Multi-processing operating system   [Windows NT]
-    Distributed system   [LOCUS]
-    Real time OS   [ATCS]

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Types of OS
    ├──▶ Single process operating system
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    ├──▶ Multi-programming operating system
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    ├──▶ Multi-processing operating system
    ├──▶ Distributed operating system
    └──▶ Real Time OS
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