

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] |

