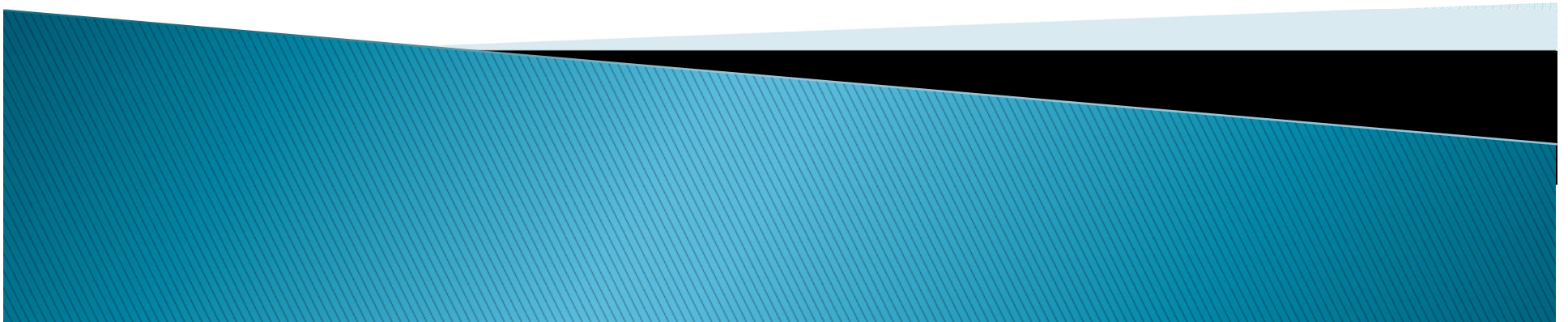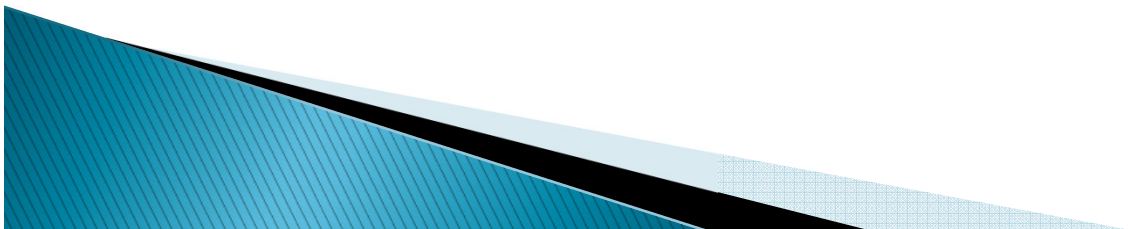# Overview of Operating Systems

Prepared by-
Rohitkumar Rajput
Class A – 01
Deputy Collector, CPTP-5

Outline of presentation

- Components of computer
- What is operating System (OS)
- Functions of Operating System
- Capabilities of OS
  - Multi-tasking
  - Multi-threading
  - Parallel Processing
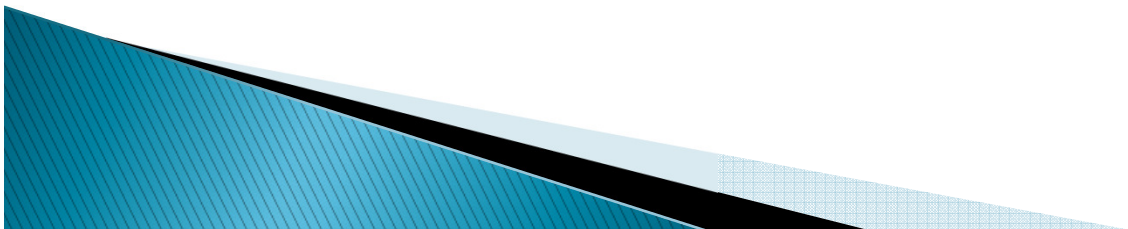- Features of a Good OS
- Most popular OS

Components of computer

- A computer consists of–
  - Central Processing Unit
  - Monitor
  - RAM
  - Harddisk
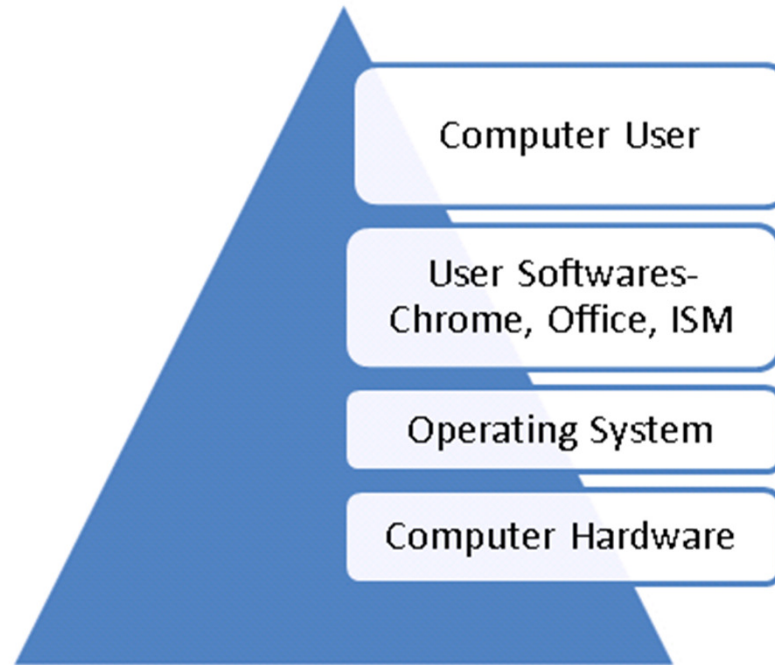 - I/O- Mouse, keyboard
  - Operating system
  - User software

What is Operating System

- Managing all these components requires a layer of software–the Operating System (OS).
- It is the most important software that runs on the computer.
- It is responsible for the management and coordination of activities and the sharing of the resources of the computer.
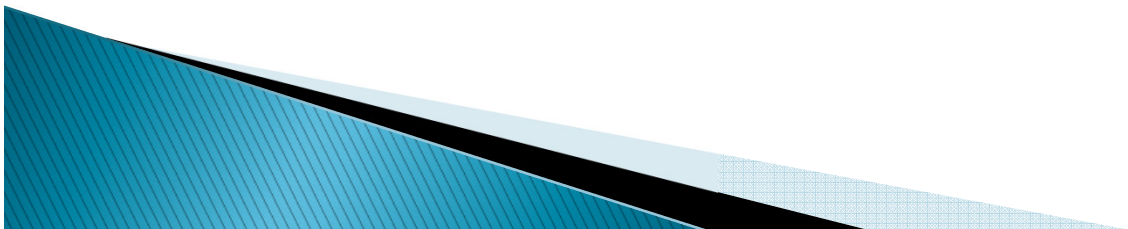
What is Operating System

▸ It acts as a <u>interface</u> between computer user and computer hardware.
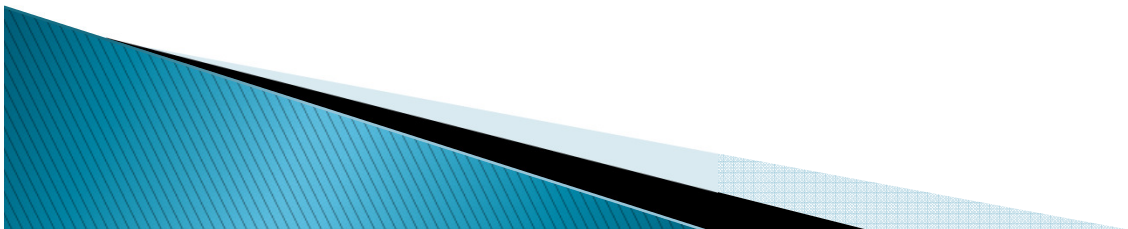
Components of OS

- ## 1. Graphical User Interface GUI-
  - ◦ It is program which allows users to interact with computer through images rather than text command.
  - ◦ It accepts input through keyboard and mouse clicks.
  - ◦ It is easy to learn.
  - ◦ It is an improvement over Command Line Interface CLI which accepts input only through keyboard.
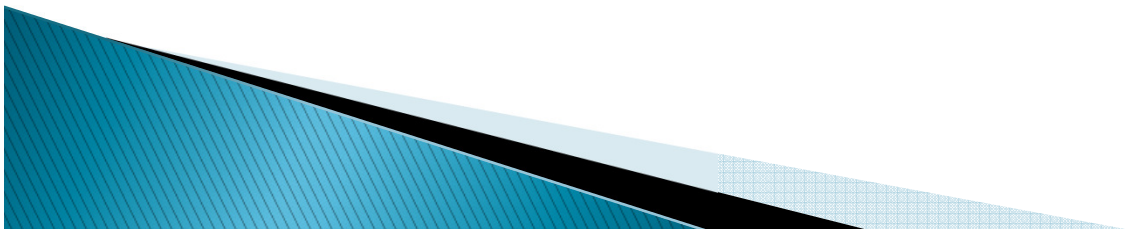
Components of OS

▶ <u>2. Kernel-</u>

◦ It is the central component of the Operating System.

◦ It acts as the bridge between user software and computer hardware.

◦ It decides which hardware resource will be allocated to which user software.
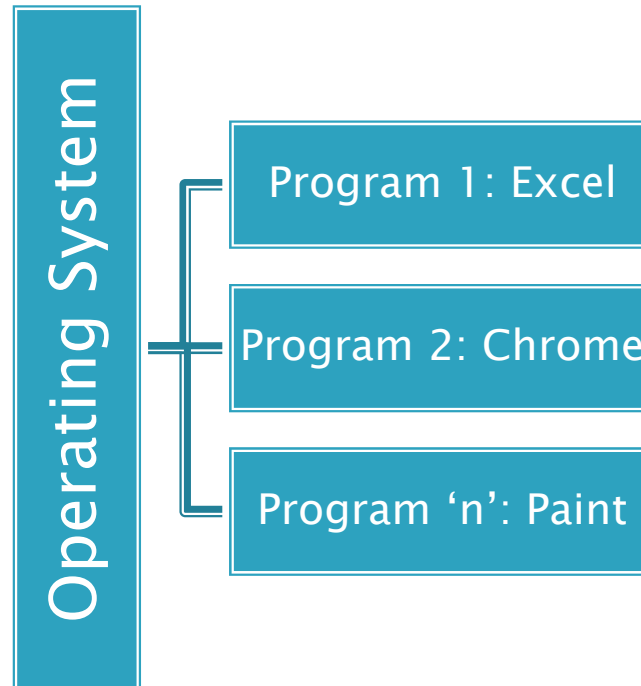
Functions of OS

- <u>Booting</u>- starting the computer
- <u>Resource management</u>- handling the harddisk, RAM, CPU efficiently
- <u>Resource allocation</u>- between user software
- <u>File management</u>- storing and retrieving user data efficiently
- <u>I/O management</u>- managing keyboard, mouse
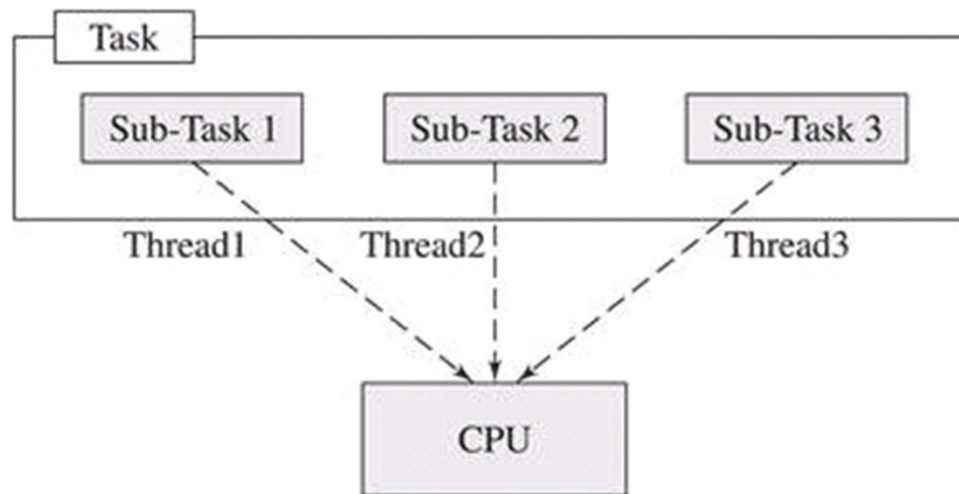- <u>Security</u>- not allowing unauthorized access

Capabilities of OS

- Multi-tasking- Ability of handling 2 or more program at the same time.

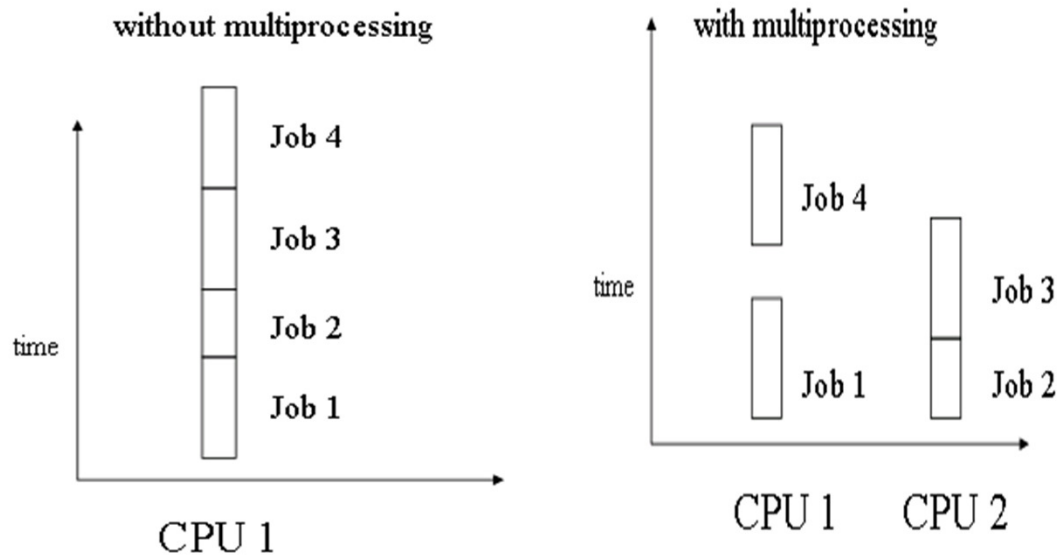| Operating System	
	Program 1: Excel
	Program 2: Chrome
	Program 'n': Paint

Capabilities of OS

- Multi-threading- Ability of handling 2 or more parts of the same program running at the same time.
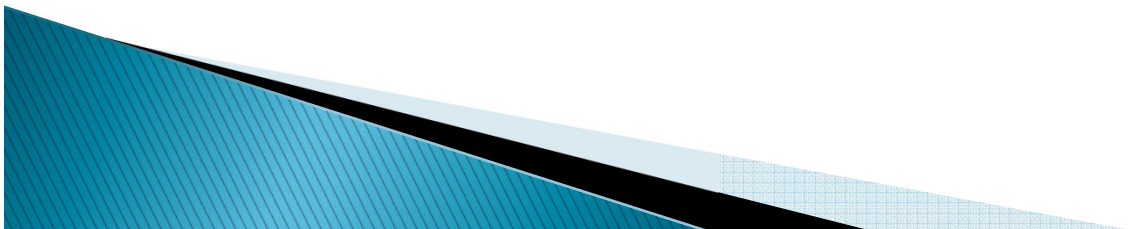- It divides a task into multiple sub-tasks which are known as threads.

Capabilities of OS

- Parallel processing- Ability of using 2 or more processors concurrently to run a program. It uses multi-core processor.
- It increases performance, reduces power consumption.

without multiprocessing

time

Job 4

Job 3

Job 2

Job 1

CPU 1

with multiprocessing

time

Job 4

Job 3

Job 1

Job 2

CPU 1   CPU 2

Features of a good OS

▸ <u>A good OS should consist of following 4S's-</u>

▸ <u>Simple</u>- Graphical User Interface GUI must be user-friendly

▸ <u>Speed</u>- must use hardware resources efficiently

▸ <u>Stability</u>- must not crash often

▸ <u>Security</u>

Most popular OS

- Operating System are everywhere- computers, smartphones and even cars.
- There are more than 100+ operating systems.
- Popular desktop OS-
  - Microsoft's Windows
  - Apple's Mac OS
  - Linux (Ubuntu
- Popular smartphone OS-
  - Google's Android
  - Apple's iOS
  - Window

Thank you