

# Operating system

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## LAB JOURNAL # 1



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# OS:

An operating system is a powerful, and usually large, program that controls and manages the hardware and other software on a computer. The goal of OS is to connect user to a Hardware. An operating system is the core set of software on a device that keeps everything together. Operating systems communicate with the device's hardware. They handle everything from your keyboard and mice to the Wi-Fi radio, storage devices, and display. In other words, an operating system handles input and output devices.

## Types of OS:

- Single and multi-tasking
- Single and multi-user
- Distributed
- Templated
- Embedded
- Real time
- Library
- Desktop system
- Handheld system

## Components of OS:

### Kernel

The kernel in the OS provides the basic level of control on all the computer peripherals.

### Process Execution

The OS gives an interface between the hardware as well as an application program so that the program can connect through the hardware device by simply following procedures & principles configured into the OS.

### Interrupt

In the operating system, interrupts are essential because they give a reliable technique for the OS to communicate & react to their surroundings.

## **Memory Management**

The functionality of an OS is nothing but memory management which manages main memory & moves processes backward and forward between disk & main memory during implementation.

## **Networking**

Networking can be defined as when the processor interacts with each other through communication lines

## **User Interface**

A GUI or user interface (UI) is the part of an OS that permits an operator to get the information.

## **Bootloader**

The software that manages the boot process of your computer. For most users, this will simply be a splash screen that pops up and eventually goes away to boot into the operating system.

# **Linux OS:**

Linux is a generic term referring to Unix-like computer operating systems based on the Linux kernel.

Linux is open source and community development operating system for computers, servers, mainframes, mobile devices, and embedded systems.

# **Why we use Linux OS:**

**High security :** Installing and using Linux on your system is the easiest way to avoid viruses and malware. The security aspect was kept in mind when developing Linux and it is much less vulnerable to viruses compared to Windows.

**High stability :** The Linux system is very stable and is not prone to crashes. The Linux OS runs exactly as fast as it did when first installed, even after several years.

**Ease of maintenance :** Maintaining the Linux OS is easy, as the user can centrally update the OS and all software installed very easily.

**Free :** Linux is completely free and users do not need to pay for anything. All the basic software required by a typical user and even an advanced user are available.

**Open Source :** The most important aspect of Linux is that its source code is available as it falls under the FOSS category (Free and Open-Source Software).

## Distributions and Linux:

Linux has a number of different versions to suit any type of user. From new users to hard-core users, you'll find a "flavor" of Linux to match your needs. Nearly every distribution of Linux can be downloaded for free, burned onto disk.

## Several distributions with features:

Popular Linux distributions include:

- **Linux Mint :** is a community-driven Linux distribution based on Ubuntu which itself is based on Debian, and bundled with a variety of free and open-source applications.
- **Debian :** is a volunteer project that has developed and maintained a GNU/Linux operating system for well over a decade.
- **Ubuntu :** Ubuntu is a Linux distribution based on Debian and composed mostly of free and open-source software.
- **Antergos:** Antergos is a discontinued Linux distribution based on Arch Linux.

- **Solus:** Solus is an independently developed operating system for the x86-64 architecture based on the Linux kernel and a choice of the homegrown Budgie desktop environment
- **Fedora:** Fedora is a Linux distribution developed by the community-supported Fedora Project which is sponsored primarily by Red Hat.
- **Elementary Os:** elementary OS is a Linux distribution based on Ubuntu LTS. It promotes itself as a “fast, open, and privacy-respecting”.
- **Opensuse:** openSUSE, formerly SUSE Linux, is a Linux distribution sponsored by SUSE Software Solutions.

## Linux file system:

A file system is the methods and data structures that an operating system uses to keep track of files on a disk or partition; that is, the way the files are organized on the disk. The word is also used to refer to a partition or disk that is used to store the files or the type of the file system.

### Linux File System Directories:

**/bin:** Where Linux core commands reside like ls, mv.

**/boot:** Where boot loader and boot files are located.

**/dev:** Where all physical drives are mounted like USBs DVDs.

**/etc:** Contains configurations for the installed packages.

**/home:** Where every user will have a personal folder to put his folders with his name like /home/likegeeks.

**/lib:** Where the libraries of the installed packages located since libraries shared among all packages.

These are some examples.

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