

SUBJECT- DIGITAL LITERACY

What is a Computer Virus?

A computer virus is a piece of code embedded in a legitimate program and is created with the ability to self-replicate infecting other programs on a computer. Just like how humans catch a cold or flu, it can remain dormant inside the system and gets activated when you least expect it.

A computer virus is developed to spread from one host to another and there are numerous ways on how your computer catches it. It can be through email attachments, file downloads, software installations, or unsecured links.

These viruses can steal your data such as passwords, hacked into your social media accounts or online banking accounts, and even wiped out all your data.

Common Types Of Computer Viruses

Cybercriminals are getting better and better at stealing our confidential data and viruses that are being created are evolving rapidly. There are millions of viruses around the world, but here are some common types you should be aware of:

1. File-infecting Virus

A virus that attached itself to an executable program. It is also called a parasitic virus which typically infects files with .exe or .com extensions. Some file infectors can overwrite host files and others can damage your hard drive's formatting.

2. Macro Virus

This type of virus is commonly found in programs such as Microsoft Word or Excel. These viruses are usually stored as part of a document and can spread when the files are transmitted to other computers, often through email attachments.

3. Browser Hijacker

This virus targets and alters your browser setting. It is often called a browser redirect virus because it redirects your browser to other malicious websites that you don't have any intention of visiting. This virus can pose other threats such as changing the default home page of your browser.

4. Web Scripting Virus

A very sneaky virus that targets popular websites. What this virus does is overwrite code on a website and insert links that can install malicious software on your device. Web scripting viruses can steal your cookies and use the information to post on your behalf on the infected website.

5. Boot Sector Virus

These viruses are once common back when computers are booted from floppy disks. Today, these viruses are found distributed in forms of physical media such as external hard drives or USB. If the computer is infected with a boot sector virus, it automatically loads into the memory enabling control of your computer.

6. Polymorphic Virus

This virus has the capability to evade anti-virus programs since it can change codes every time an infected file is performed.

7. Resident Virus

A resident virus stores itself on your computer's memory which allows it to infect files on your computer. This virus can interfere with your operating system leading to file and program corruption.

8. Multipartite Virus

A type of virus that is very infectious and can easily spread on your computer system. It can infect multiple parts of a system including memory, files, and boot sector which makes it difficult to contain.

Protection Against These Types Computer Viruses

A virus left untreated can wreak havoc on your device but if detected early, and appropriate measures are done, then the recovery would be quick. Just like how we protect ourselves from catching a virus, here are a few notes to remember to help keep your devices safe.

1. Avoid clicking on suspicious links.
2. Scan email attachments before opening it.
3. Avoid clicking on pop-up advertisements and get a pop-up blocker for your web browser.
4. When routed to another website, don't do anything, and immediately leave the site.
5. Install a reliable [anti-virus program](#) and always keep it up to date.

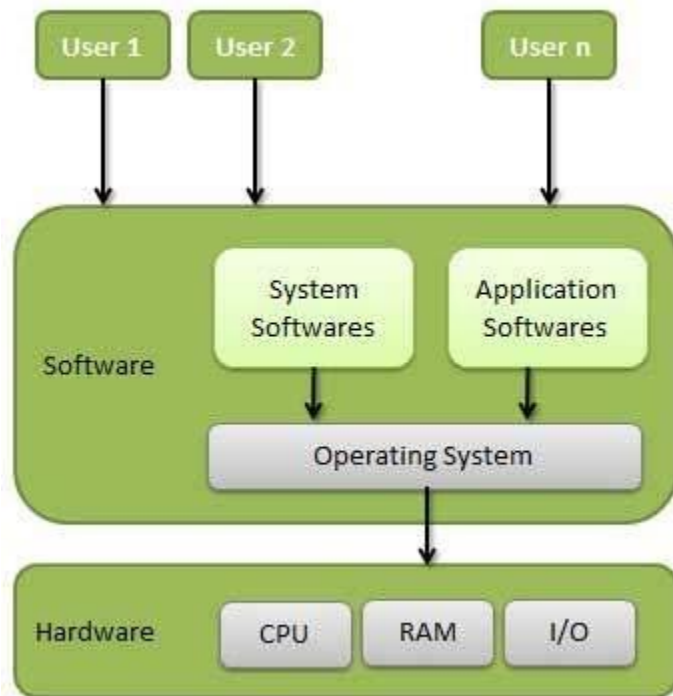
An Operating System (OS) is an interface between a computer user and computer hardware. An operating system is a software which performs all the basic tasks like file management, memory management, process management, handling input and output, and controlling peripheral devices such as disk drives and printers.

Some popular Operating Systems include Linux Operating System, Windows Operating System, VMS, OS/400, AIX, z/OS, etc.

Overview of Operating System

Definition

An operating system is a program that acts as an interface between the user and the computer hardware and controls the execution of all kinds of programs.



Following are some of important functions of an operating System.

- Memory Management
- Processor Management
- Device Management
- File Management
- Security
- Control over system performance
- Job accounting
- Error detecting aids
- Coordination between other software and users

Memory Management

Memory management refers to management of Primary Memory or Main Memory. Main memory is a large array of words or bytes where each word or byte has its own address.

Main memory provides a fast storage that can be accessed directly by the CPU. For a program to be executed, it must be in the main memory. An Operating System does the following activities for memory management –

- Keeps tracks of primary memory, i.e., what part of it are in use by whom, what part are not in use.
- In multiprogramming, the OS decides which process will get memory when and how much.
- Allocates the memory when a process requests it to do so.
- De-allocates the memory when a process no longer needs it or has been terminated.

Processor Management

In multiprogramming environment, the OS decides which process gets the processor when and for how much time. This function is called **process scheduling**. An Operating System does the following activities for processor management –

- Keeps tracks of processor and status of process. The program responsible for this task is known as **traffic controller**.
- Allocates the processor (CPU) to a process.
- De-allocates processor when a process is no longer required.

Device Management

An Operating System manages device communication via their respective drivers. It does the following activities for device management –

- Keeps tracks of all devices. Program responsible for this task is known as the **I/O controller**.
- Decides which process gets the device when and for how much time.
- Allocates the device in the efficient way.
- De-allocates devices.

File Management

A file system is normally organized into directories for easy navigation and usage. These directories may contain files and other directions.

An Operating System does the following activities for file management –

- Keeps track of information, location, uses, status etc. The collective facilities are often known as **file system**.
- Decides who gets the resources.
- Allocates the resources.
- De-allocates the resources.

Other Important Activities

Following are some of the important activities that an Operating System performs –

- **Security** – By means of password and similar other techniques, it prevents unauthorized access to programs and data.
- **Control over system performance** – Recording delays between request for a service and response from the system.
- **Job accounting** – Keeping track of time and resources used by various jobs and users.
- **Error detecting aids** – Production of dumps, traces, error messages, and other debugging and error detecting aids.
- **Coordination between other softwares and users** – Coordination and assignment of compilers, interpreters, assemblers and other software to the various users of the computer systems.