THE VIRUS

Computers and data have become the life line of any organization. If something goes wrong with computers or the data, business almost comes to a standstill. This causes a loss of several hours of hard work and research.

A computer virus is a program or a set of programs that disrupts the normal operation of a computer. Virus infects or destroys data. It enters in the computer without the permission or knowledge of the user.

The full form of VIRUS is **Vital Information Resources Under Seize**. The essential resources of the computer like memory, processing speed, data and programs etc. cannot have normal operations and can be harmed, when virus is spread.

Virus programs are self-replicating and are continuously expanding their reach by infecting more and more computer files, resulting in loss of speed and destruction of data.

Computer programs are written to instruct the computer what the user wants it to do. But Virus programs make the computer do those things which you never want. Normally, it enters through an infected floppy or Internet/E-mail.

To avoid detection, they are secretly hidden. Virus programs can remain undetected and quietly inactive for a long time waiting for a particular signal or an event to trigger them. E.g.: Some virus programs monitor the clock in the host computer and trigger on a certain day, like **Friday the 13th**.

Some viruses are harmless. They display simple message. But most of the viruses are harmful. Viruses are written by destructive sources who just want to amuse themselves. Their authors give them fancy name like AIDS, Saturday 14, Dark Avenger and Friday the 13th.

A computer virus is a program. It should not be confused with the medical term virus which is an organism. However, both of them have the same features as far as their destructive activities are concerned. Major difference between the two is that a biological virus causes physical harm to our body and attack certain cells, whereas, computer virus causes harm to the data and programs stored in a computer by over writing them with garbage or erasing them.

Trojan Horses, Worms and **Spyware** are some other terms which are associated with virus programs but are actually different from virus programs.

TROJAN HORSE are simple programs that pretend to be useful applications while they always do something destructive - most likely does damage to a computer, like erasing a disk. They are not self replicating. A Trojan can spread only when it is copied to another system. The name 'Trojan Horse' is derived from the wooden horse used by the Greek Army to conquer the city of Troy.

WORM is a special type of virus program that copies and multiplies itself by using computer networks and security flaws. They can overload network resources very quickly, which in turn cause slow down data transmission due to heavy

consumption of system memory or network bandwidth.

MALWARE is made up of two words **malicious** and **software**. It is a software that enters into a computer and damages it without the knowledge of the user. Malware is a trouble causing program. It may be a virus, worm, Trojan horse or spyware. Malwares not only interrupt the normal working of a computer but also steal important information.

SPYWARE is a type of malware that is installed on computers and collects information about users without their knowledge. Spyware programs secretly monitor the user's computing. They can collect various types of personal information such as internet surfing habits, visited web pages, and transmits that information in the background to someone else. Sometimes they also change computer settings that result in slow connection speed and wrong functionality of other programs. Spyware can also collect information about e-mail addresses, passwords and even credit card numbers.

TYPES OF VIRUS

Viruses can be classified by their infection targets into the following types:

BOOT VIRUSES: These viruses infect the boot record or master boot records. They replace the boot record that is responsible for loading the Operating System in memory by copying it elsewhere. Boot virus becomes active at the time of booting the machine. Examples are - Disk killer, Stoned virus etc.

PROGRAM FILE VIRUSES: These viruses infect executable files, programs such as those with extension like .com, .exe, .ovl, .drv, .sys etc. These programs get loaded in the memory during execution. The virus becomes active in memory by replicating itself and infecting files on the disk. The examples of Program file virus are Sunday, Cascade etc.

MACRO VIRUSES: Macro viruses use another application's macro programming language to distribute themselves. They infect documents such as MS Word or MS Excel, and are typically spread to other similar documents.

VIRUS SYMPTOMS

A virus can cause problems in a computer in many ways, such as:
+ Decreasing the speed of a computer by decreasing the memory.
+ Causing strange movements or patterns on the screen.
+ Displaying unusual messages like "Your PC is stoned" etc.
+ Increasing the use of disk space and growth in file size as the virus gets attached itself to many files.
+ Frequent hanging of the system.
+ Showing abnormal write protect error.
+ Displaying a change in data against the filename in the directory, when a virus modifies the file.
+ Reformatting the hard disk.
+ Deleting or damaging files.

PREVENTING A VIRUS INFECTION

To prevent virus attack, follow the given tips:
+ Every PC should be equipped with some anti-virus program.
+ Always scan the pen drive before copying files.

- Do not install pirated software.
- Scan the hard disk twice a month.
- Take the back up of important files everyday.
- Use Internet and e-mail attachments very carefully.

ANTIVIRUS SOFTWARE

Antivirus software are computer programs which are designed to identify, prevent and remove viruses from a computer. They perform the following tasks in a computer:

- Scan the computer files to look for known viruses matching definitions from virus dictionary.
- Identify suspicious behaviour from any computer program which might indicate infection.

Simply installing an antivirus software in our computer does not guarantee 100% protection, as the installed Antivirus program would not be able to detect new virus programs. We should keep on updating our computer with the latest versions of Antivirus programs. Most of the Antivirus software companies provide the facility to download the latest updates from their websites. Some of the popular Antivirus programs are:

Norton Antivirus   McAfee Virus Scan   AVG Antivirus   PC-Cilin   Avira Antivirus

USING AN ANTIVIRUS SOFTWARE

The steps to use an Antivirus software are as follows:
We are using the AVG Antivirus software here. Likewise, you can use any other antivirus like Norton Antivirus, Quickheal, McAfee etc. which is loaded on your system.

- To open AVG Antivirus software, click on **Start > All Programs > AVG 2012 > AVG User Interface**.

Fig. 11.1: **Using an Antivirus Software**

- The 'AVG Internet Security' window appears.
- Click on **Scan options**.
- Three options are displayed under 'Scan for threats' section. To scan the whole computer, select **Whole computer scan** option.   Or
- To scan any particular files or folders, select the **Scan specific files or folders** option.
- Click on **Scan now** option.

Fig. 11.2: **AVG Internet Security Window**

The scanning process starts and displays the following window.

- If viruses are found, the antivirus will inform the same to the user and will either delete the virus or will quarantine it (isolate it so that it cannot affect the system).

✦ When the scan process gets over, the message 'The scan is complete' is displayed in the window.

💡 tip You can also scan a drive/ file/ folder for viruses by right-clicking on it and then selecting the **Scan with AVG** option.
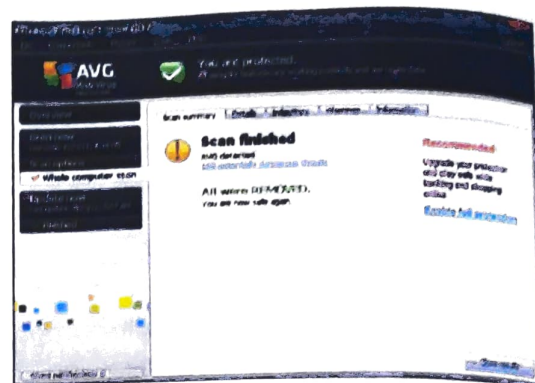

Fig. 11.3: Scanning Process

Points At a GLANCE

✦ A computer virus is a program or a set of programs that disrupts the normal operation of a computer.

✦ VIRUS stands for Vital Information Resources Under Seize.

✦ Trojan Horse are simple programs that pretend to be useful applications while they always do something destructive.

✦ WORM is a special type of virus program that copies and multiplies itself by using computer networks and security flaws.

✦ Spyware collects information about users without their knowledge.

✦ Antivirus software are computer programs which are designed to identify, prevent and remove viruses from your computer.

Brain DEVELOPER

A. Fill in the blanks:

1. A computer virus .... the normal operation of a computer.

2. Computer virus results in loss of .... and .... of data.

3. Virus .... in the computer without the permission or knowledge of the user.

4. A computer virus causes harm to the .... and .... stored in a computer by overwriting them with garbage.

5. Virus, enters through an infected ...., ... or ....

6. Virus programs are ....

7. Some virus programs monitor the .... in the host computer and trigger on a certain day, like ....

8. .... are designed to identify, prevent and remove virus from a computer.

HINTS
- Self-replicating
- Antivirus software
- disrupts
- data
- destruction
- clock
- floppy
- enters
- E-mail
- Internet
- speed
- programs
- Friday the 13ᵗʰ

B. State True or False:

1. A computer virus is similar to biological virus. ☐

2. All virus programs cause harm to data or programs. ☐

3. The virus, Friday the 13th gets activated on 25th December. ☐

4. Virus programs do not replicate themselves. ☐

5. We should not equip our computer with anti-virus programs. ☐

6. Trojan Horses replicate themselves. ☐

7. Virus can enter in our computer through an infected floppy. ☐

8. Virus has no effect on the speed of the computer. ☐

9. Virus increases the memory of the computer. ☐

10. VIRUS stands for Vital Information Resources Under Seize. ☐

C. Application Based Questions:

1. Varsha's computer has got infected with a virus which led to the frequent hanging of the system. Which software will you suggest her to install in order to solve this problem?

....

2. Sumit's computer is not working properly. The executable files and programs with extensions like .com, .exe, .ovl, .drv, .sys on his PC have got infected. What type of virus has entered into his computer?

....

D. Multiple Choice Questions:

1. Which virus infects the boot record or master boot records?

   a. Worm   b. Boot Virus   c. Spyware

2. Which virus is named after the wooden horse used by the Greek Army to conquer the city of Troy?

   a. Dark Avenger   b. Stoned Virus   c. Trojan Horse

3. When was the first PC virus released?

   a. 1897   b. 1985   c. 1987

4. Which one is the name of a virus?

   a. Jan First   b. May First   c. April First

5. Who released the first PC virus?

   a. Duke Brothers   b. Wright Brothers   c. Farooq Alvi Brothers

E. Answer the following:

1. What is a computer virus? Name its types.

2. Write any three possible symptoms of virus in a computer.

3. What do you understand by the term Spyware?

4. Explain the term Trojan Horse.

5. Write any three ways that can help in preventing a virus infection.

6. Briefly explain antivirus software. Name the antivirus software which is being used in your school computers.