



**ACADEMIC WORLD SCHOOL™**

**BEMETARA**

**Class- VIII**

**Subject- Computer**

**1**

# Introduction To Computers : Networking



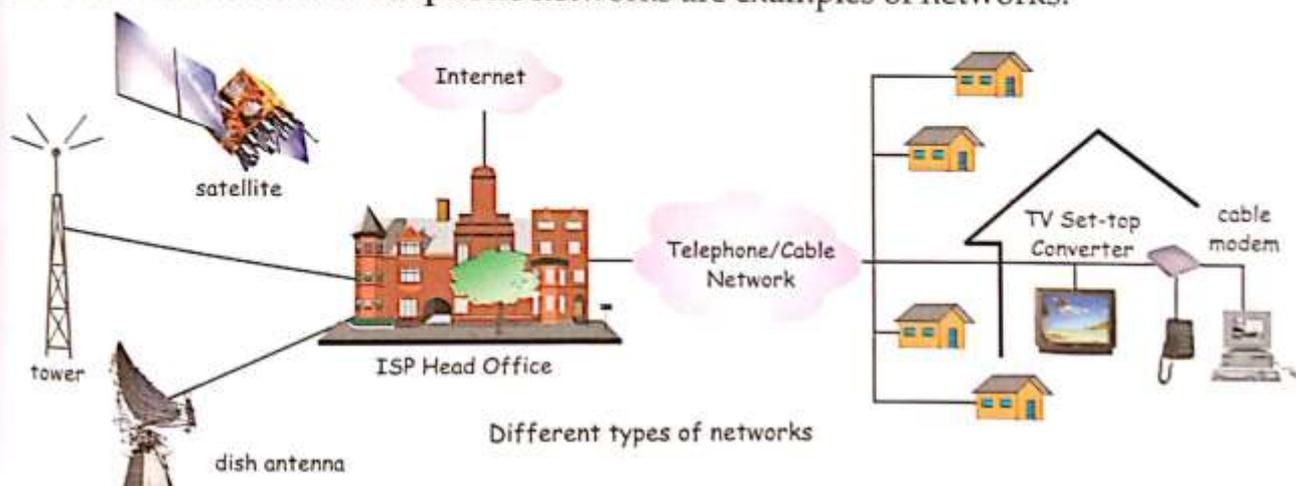
## LEARNER'S OUTCOME

After completing this chapter, you will be able to :

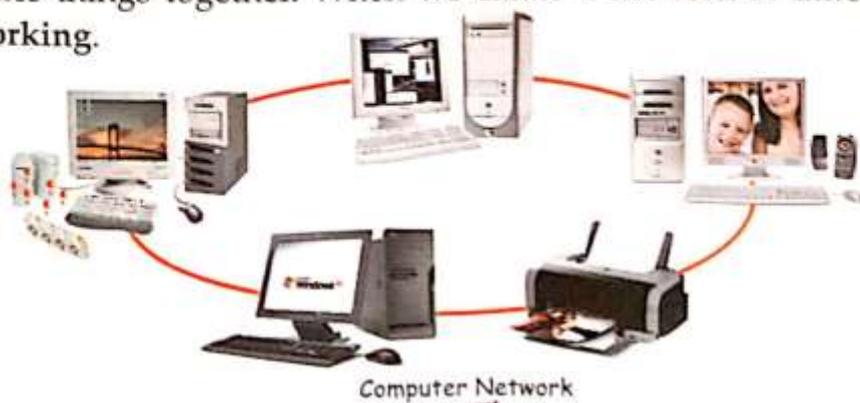
- ❖ define computer network
- ❖ list the benefits of a network
- ❖ list hardware requirements to establish a computer network
- ❖ differentiate between various types of networks and their nature
- ❖ list advantages and disadvantages of various topologies
- ❖ create computer network
- ❖ define network topology
- ❖ define protocol

## INTRODUCTION

Networking refers to the inter-connection of various devices to share their resources. A network is a group of devices connected with one another. Cable networks, television networks and telephone networks are examples of networks.



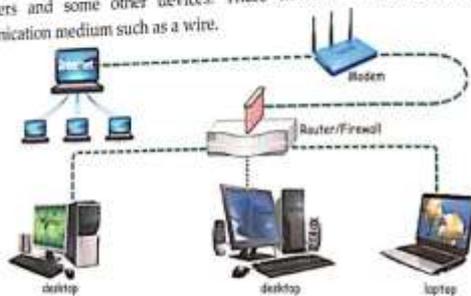
A network ties things together. When we create a network of different devices, it is called **networking**.



## COMPUTER NETWORK

A **computer network** is a collection of computers and peripheral devices (collectively known as network components) connected by communication links.

In order to establish a computer network, we need at least two or more than two computers and some other devices. These devices are inter-connected using a communication medium such as a wire.



The communication media or links allow the network components to work together. The network components may be located at remote locations or within the same building.

### CREATING A COMPUTER NETWORK

A network can be of any size. For example, a small network can be created by connecting two computers for sharing files.



A network can connect millions of computers to exchange information all over the world. The **Internet** is the world's largest computer network.

When you connect your computer to a network using a cable or other communication media, you become a **network user** and the computer becomes a **workstation** on the network. Your workstation has all its usual resources, called **local resources**, such as a local hard drive and a local printer. Your workstation can also access files stored on a **file server** and make use of other **network resources**.

### REMEMBER

A file server is a computer connected to the network, which serves or distributes files to the network users. Network resources include disk storage space, printer and other peripheral devices available.

### Practical in Computer Lab

1. Visit the computer lab in your school and closely examine the computer network there.
2. Prepare a list of the number of computers and other peripheral devices connected to the network.

### NETWORK BENEFITS

Many companies and individuals have discovered that there are several benefits of connecting computers together. Network can benefit the users by increasing productivity, lowering the costs and much more.

#### Ease Of Access

The network stores most of the information on a **central computer**. Storing information on one or two central computers makes it easy for people to work with and manage their files.

A network also allows people to access their information from other computers on the network.

#### Work From Home

The network has dedicated computers that allow people to connect to the company's network using a modem.

Once users are connected to the network, they can work with any data available on the network. Network makes it easy for people to access office information from home.

#### Sharing Resources

Computers connected to a network can share equipments and devices including printers and hard drives. These equipments and devices are called **resources**. The ability to share resources **reduces the cost** of buying computer hardware. For example, instead of buying a printer for each person on a network, everyone on the network can share one central printer.

#### Sharing Information

You can use a network to exchange information with other people. Information can be in any form of data, such as documents created in a word processing program or information provided by the school database.

#### Increase Productivity

Using the computers connected to a network, people can exchange information with one another. When employees can easily access and exchange information, they can work more efficiently. For example, network allows people in different offices to work on a project together. This also reduces the need for hard copies of all the documents.

#### Sharing Programs

Most of the people who are connected to a network, use a central computer to work with different programs such as word processors and spreadsheets. Network makes installing programs simple because only one copy of a program needs to be installed on a central computer.

#### Administration

Networking makes it easy to monitor and control the entire company's computers. Many companies have a person called the **Network Administrator**, who oversees all administration for the network.

#### Security

Before accessing information on a network, users must enter a **username** and **password**. This ensures that only authorised people can use the information stored on the network. Username and password allows the network administrator to keep track of everyone who uses the computers on a network.

Networks have built-in **security programs**. These security programs monitor and report any abnormal activity on a computer network to the network administrator.

Networks can be set up to refuse access to anyone who enters an incorrect password. This discourages the unauthorised users from trying to access the information on the network.

### Multiple Choice Questions

- Tick (✓) the correct option.
1. The world's largest computer network is .....  
 (a) Server  (b) Internet  (c) Both (a) and (b)
  2. A ..... is a computer on the network.  
 (a) resource  (b) modem  (c) workstation
  3. You can share ..... and ..... using networking.  
 (a) resources, programs  (b) food, clothes  (c) Both (a) and (b)

### NETWORK HARDWARE

**Network hardware** includes the physical components that work together to create a network. All computer networks require at least the following hardware:

#### Computer

The most important job of a network is to link computers together. When computers are linked, the people using the computers can work more efficiently. Computers connected to a network need not to be of the same type. Many networks contain different types of computers, such as **IBM-Compatible** and **Macintosh**.

#### Do You Know?

Special software are required to make different computers compatible with each other.

#### Cables

**Cables** are the wires that connect computers and resources on a network. Different kinds of cables can be used, depending on the type and size of the network. The type of a cable used often determines the speed of the network, i.e. how quickly the information travels through the network to reach its destination. For some networks, several miles of cables may be required.



cables

#### Connectors

A **connector** is a device that joins two computers or networks together.



RJ-45 connector

#### Network Interface Card

A **Network Interface Card (NIC)** is a device that joins a cable to a computer. Most Network Interface Cards are installed inside a computer. The edge of the card can be seen at the back of the computer. A NIC has a port where the network cable plugs in.



Network Interface Card

#### Do You Know?

- ◆ Now-a-days most of the computers are designed with pre-installed Network Interface Card.
- ◆ Most of the laptops come with the Wireless Network cards in-built.

### ST UPDATE

**Wi-Fi (Wireless Fidelity)** technology is the wireless computer network that allows users to connect to the Internet without wires or cables. A device enabled with Wi-Fi can connect to the Internet when it lies within the range of a wireless network.



## TYPES OF NETWORKS

There are various types of computer networks. Generally, the following types of networks are used:

### Personal Area Network (PAN)

A **Personal Area Network** is a computer network used for communication among various electronic devices such as personal computers and mobile phones in a close proximity. The area of a PAN is typically a few meters. PANs can be used for communication among the devices or for connecting to the Internet. A PAN may use wireless connection as well.



Personal Area Network

### Local Area Network (LAN)

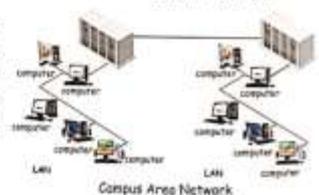
A **Local Area Network** is the most common type of network. A LAN connects computers and devices located close to one another, such as in one building. Usually, this type of network does not consist of more than 100 computers. For example, computers connected in an office.



Local Area Network

### Campus Area Network (CAN)

A **Campus Area Network** is a computer network made of an inter-connection of two or more Local Area Networks (LANs) within a limited area. This type of network is larger than a Local Area Network but smaller than Wide Area Network (WAN).



Campus Area Network

### Metropolitan Area Network (MAN)

A **Metropolitan Area Network** is also a collection of Local Area Networks. Metropolitan Area Network connects computers located in the same geographical area such as a city or a town. For example, branches of a local bank in a city.



Metropolitan Area Network

#### Do You Know?

Campus Area Network can be considered as one of the forms of Metropolitan Area Network, specific to an academic setting.

### Wide Area Network (WAN)

A **Wide Area Network** connects LAN and MAN together. The networks that make up a Wide Area Network, may be located throughout a country or even around the world. For example, Internet and ATM facility.



Wide Area Network

When a single company owns and controls a Wide Area Network, it is often called as an enterprise network.

## NATURE OF COMPUTER NETWORK

### Permanent Network

Most companies use a permanent network to transfer information. A permanent network uses cables to link computers together. The computers and cables on a permanent network stay connected and in place at all times.

### Temporary Network

A temporary network is a network connection that is established for a brief period of time and then disconnected. The most common type of temporary network occurs when an employee connects a computer at home, to a computer at the workplace using a modem.

### Multiple Choice Questions

Tick (✓) the correct option.

- NIC stands for .....  
 (a) Network Interface Card  (b) Network Internet Connection   
 (c) Network Inter-related Computer
- The wires that connect computers and resources on the network are .....  
 (a) connectors  (b) cables  (c) none of these
- ..... spreads throughout the country or even around the world,  
 (a) LAN  (b) MAN  (c) WAN

## NETWORK TOPOLOGY

The art of connecting different computers in a network is known as **topology**. The term **network topology** refers to the way in which the **nodes** (computer or other devices that need to communicate) of a network are linked together. It determines the data paths, which may be used between any pair of nodes in the network.

There are three basic topologies:

- star topology
- ring topology
- bus topology

### Star Topology

In a **star topology**, all the nodes are connected to a central system called **Switch**, which forwards data towards its final destination. The Switch controls the communication on the network.

#### Advantages Of Star Topology

- Star topology has minimal line cost.
- If any of the local computer fails, the remaining portion of the network remains unaffected.

#### Disadvantages Of Star Topology

- The system crucially depends on the central switch. If it fails, the entire network goes down.



star topology

### Ring Topology

In a **ring topology**, the nodes are connected in a closed loop so that each device is connected to two other devices, one on either side. The computers in a ring topology are connected in the shape of a **closed ring**.

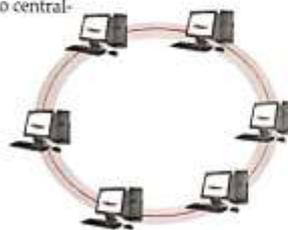
Data travels only in one direction in a ring. Each computer passes the data to the next one on the line automatically.

#### Advantages Of Ring Topology

- The ring topology works well where there is no central-site computer system.
- It is more reliable than star topology.

#### Disadvantages Of Ring topology

- The ring network requires more complicated control software.
- Failure of one node results in the failure of the entire network.



ring topology

### Bus Topology

In a **bus topology**, all the nodes are connected to a central cable called **bus**. In bus topology, a bus is a single continuous cable.

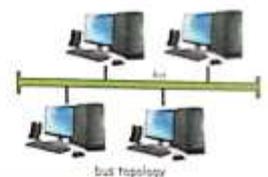
Transmission from any node travels the length of the bus in both directions and can be received by all the other nodes in the network. The bus has **terminators** at either ends which absorbs the signal, removing it from the bus.

### Advantages Of Bus Topology

- It is quite easy to set up.
- Failure of one node does not affect the rest of the network.

### Disadvantages Of Bus Topology

- It offers limited flexibility for change.
- A signal on the bus must be strong enough to reach the receiver.



bus topology

### REMEMBER

- A node is a computer or any other device on a network that communicates with other devices.
- The way in which the nodes of a network are linked together is called topology.

#### Do You Know?

Hubs are also used instead of Switches to connect the computers, but Switches are preferred more because of better efficiency.

## PROTOCOL

A **network protocol** defines rules for communication between network devices.

### Internet Protocol (IP)

It is the protocol by which data is sent from one computer to another on the Internet. Each computer on the Internet has at least one IP address that uniquely identifies it from all other computers on the Internet. When you send or receive data, the message gets divided in the form of **packets**. These packets contain both the sender's and the receiver's IP address. The Internet Protocol just delivers them.

### Transmission Control Protocol (TCP)

It is the protocol that puts the packets back in the right order.

### Hypertext Transfer Protocol (HTTP)

It is a set of rules for transferring files (text, graphic images, sound, videos and other multimedia files) on the World Wide Web. As soon as a user opens the web browser, the user is indirectly making use of the HTTP.

HTTP is an application protocol that runs on top of the TCP/IP protocols.

#### Do You Know?

Transmission Control Protocol and Internet Protocol are together known as TCP/IP.

## Exercise

A. Guess who am I



1. I am a collection of computers and peripheral devices.
2. I am the world's largest computer network.
3. I am a device that joins two computers or networks together.
4. I spread throughout the country or even the world.
5. I define rules for communication between network devices.

B. Answer the following questions:

1. What is a node?
2. What is a topology?
3. Describe a network in your own words.
4. What do you mean a file server?
5. Write a short note on the hardware parts required to establish a network.
6. Draw and explain the types of network.
7. Write at least three benefits of using a network.
8. Define topology.
9. Draw the diagram of topologies.
10. Write two advantages of star, ring and bus topology.
11. Write two disadvantages of star, ring and bus topology.
12. What is protocol?
13. Describe the role of TCP/IP.

C. Higher order thinking skills:

1. Modern Vidya Mandir has 60 computers in the computer lab. The Principal wants to connect all the computers and devices within the school building. Which network should he/she use to do the same? Justify your answer.



# More On Internet



## LEARNER'S OUTCOME

After completing this chapter, you will be able to:

- ❖ define commerce
- ❖ define the modes of e-commerce
- ❖ know e-commerce payment system
- ❖ do online shopping
- ❖ define video conferencing
- ❖ define blog and list its advantages
- ❖ list the advantages of social networking sites
- ❖ identify the types of people involved in e-commerce
- ❖ list the advantages of e-commerce
- ❖ define ethics and sites of e-commerce
- ❖ view online news
- ❖ define newsgroups
- ❖ use social networking sites
- ❖ use Global Positioning System

## INTRODUCTION

Internet is like a big library. It has greatly influenced our society, government and commerce. You have already learnt about many of the uses of Internet in your previous classes like e-mail, e-cards, chatting, downloading, online education and finding people.

Let us learn some other uses and services available on the Internet.

## E-COMMERCE

You know about the term **commerce**. It is involved with buying and selling a product. You can see commerce all around. It may take different forms. Three different types of people are involved with commerce. These are:

 producers

 sellers

 buyers

Commerce revolves around these categories of people.

**Producers** are the people who produce different kinds of products or items and provide services.

**Sellers** are the people who sell items or goods and give services to the people.

**Buyers** are the people who purchase items and services.

For example, Amul **produces** Amul chocolate, which the shopkeeper in your neighbourhood **sells** and you **buy** it.

So, Amul company is the **producer**, the shopkeeper is the **seller** and you are the **buyer**.

**Electronic-commerce** or **e-commerce** means buying and selling any product online using the Internet technologies. Many companies have set up their websites, which provide the facility to order and purchase their products and services. These websites, which provide e-commerce are specially designed and have some extra features.



There are four basic modes of e-commerce available:

- Business-to-Business (B2B)
- Business-to-Consumer (B2C)
- Consumer-to-Consumer (C2C)
- Digital Middlepersons

### Business-To-Business (B2B)

This refers to a company selling or buying products or services to/from other companies.



www.business-tobusiness.net

### Business-To-Consumer (B2C)

This refers to the transaction that takes place between a company and a consumer. The company establishes website for its products and services so that the customer can order any products or services and gather information about them.



www.dell.com

### Consumer-To-Consumer (C2C)

There are many sites offering free classifieds and auctions where individuals can buy and sell. The eBay's auction service is a great example of C2C e-commerce, where person-to-person (consumer to consumer) transactions take place everyday since 1995.



www.ebay.com

### Digital Middlepersons

This refers to a company that provides information about several companies on a single website. This company gathers information from other companies about the same type of products and services. A commission is charged for every sale or purchase by the company hosting the website.



www.freeality.com

### Advantages Of E-commerce

There are several advantages of e-commerce. Some of them are as follows:

- You do not need to go to the showrooms or shops to buy products.
- You do not need to carry cash from home to shop with a fear of losing it.
- You do not need to search an item manually with the help of a sales person.
- There are no geographical or time barriers. You can buy the products from anywhere in the world at any time by sitting at your home.
- Even small companies can go global.
- You can save time, money and effort.

### E-commerce Payment System

An E-commerce payment system accepts electronic payment for online transactions. This is also known as **Electronic Data Interchange (EDI)**. These online payment systems are used with online shopping and banking.

There are different types of payment systems like traditional credit, debit and charge card. New technologies such as digital wallets, e-cash, mobile payment and e-checks are also getting popular with people. Another form of payment system used allows third party companies like **PayPal** to complete the online transaction for you. These companies are called **Payment Service Providers (PSP)**.



Over the years, **credit cards** have become one of the most common forms of payment for e-commerce transactions. But increased security measures such as the use of the **Card Verification Value (CVV)** are required to detect any kind of fraud.



A **smart card** is similar to a credit card that can transfer electronic cash to your card from your bank account, and you can then use your card at various retailers and on the Internet.

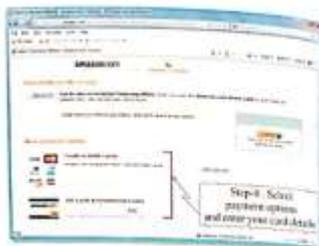
A popular smart card initiative is the **VISA smart card**.

### UPDATE

A digital wallet (e-wallet) allows users to make electronic commerce transactions quickly and securely. Digital wallets are small electronic packages that automatically supply information such as credit card numbers and shipping addresses for use in the e-commerce transactions.



Step 3 Select the payment options and enter your card's details.



### Practical in Computer Lab

Visit any online shopping website and look for different categories of products. Click on the links and note down their prices.

### ONLINE NEWS

Most of the newspapers and news channels now-a-days have an Internet version. You can visit them online. So, using the Internet, you can access newspapers and news channels from all over the world.

Some websites that provide online news are:

- www.ndtv.com
- www.hindustantimes.com
- www.kidnews.com



www.ndtv.com

### Practical in Computer Lab

Visit any newspaper site and write down some of the headlines in your notebook.

### VIDEO CONFERENCING

Video conferencing is one of the most exciting features of Internet. Two people from different places can talk as if they are sitting face to face by using video conferencing.



www.videoconference.com



Video conferencing is widely used in large scale companies, TV shows and while doing chatting. It provides face to face conversation with different people who are sitting at different locations.

### NEWSGROUPS

There are different places on the Internet where you can exchange your views and ideas on different subjects with other people. These places are called **newsgroups**. You can read messages posted by other people, reply to these messages, post questions regarding something and so on. You can search newsgroup of your interest using some search engines.



www.newsgroup.com

### Multiple Choice Questions

Tick (✓) the correct option.

- You can talk to people face to face using .....  
 (a) newsgroups     (b) e-mails     (c) video conferencing
- Buying products using Internet is .....  
 (a) online shopping     (b) online chatting     (c) newsgroups

### BLOGS

The term blog is derived from the term **weblog**. A **blog** is a type of website, usually maintained by an individual. It contains regular entries of commentary, descriptions of events or some other material such as graphics or videos. **Blog** also means 'to maintain or add contents to a blog'.

A typical blog combines text, images and links to other blogs, webpages and other media related to its topic. There are different types of blogs like **Personal blog**, **Corporate blog** and **Moblog**. The mostly used blog is **personal blog**. An important aspect of many blogs is the ability for readers to leave comments in an interactive format.

The **personal blog**, an ongoing diary or commentary by an individual, is the traditional, most common blog sites.



With Computers-8

### E-commerce Sites And Ethics

E-commerce sites are the special sites with some extra security features. Trust is one of the key factors for these sites. Buying products through Internet is very easy and simple. But you must not do it alone or without the permission of your parents or elders. There are numerous fraud companies which sell the products and services. They may steal your credit card codes and PIN and you may run up with huge bills of credit cards while you might have purchased products for a few hundred rupees only. So, you must be very careful while buying products online.

Some of the popular e-commerce sites are:

- ❖ www.amazon.com
- ❖ www.ebay.com
- ❖ www.indiatimes.com
- ❖ www.bookselleronline.com
- ❖ www.fabmart.com



### Multiple Choice Questions

Tick (✓) the correct option.

1. The people involved with commerce are categorised into .....  
 (a) 4 types  (b) 3 types  (c) 2 types
2. People who purchase products are .....  
 (a) sellers  (b) producers  (c) buyers
3. The key factors in E-commerce sites are .....  
 (a) e-mail  (b) trust and security  (c) chat

### How To Do Online Shopping

Online shopping means buying products using Internet. You need an authorised e-commerce site and a debit/credit card for this purpose.

To do online shopping, follow the given steps:

**Step 1** → Open any e-commerce website, for example, www.amazon.com and fill the required details to Sign In. (If you do not have an account, create it).



**Step 2** → Enter the product name in the Search box and click the Go button. A list appears displaying all the available products.

**Step 3** → Double-click on the product you are interested in and view the details of the product.

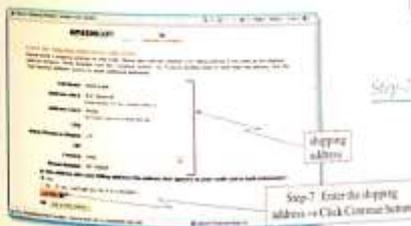
**Step 4** → Click the **Add to Cart** button. You see the products in your cart.



**Step 5** → Click the **Proceed to checkout** button. A form appears.



**Step 6** → Enter your e-mail address and password. Click the **Sign in using our secure service** button.



**Step 7** → Enter the shipping address and click the **Continue** button.

Type [www.cordoviancomp.blogspot.in](http://www.cordoviancomp.blogspot.in) in the URL to view the blog you have posted.



### In A Nutshell

- ❖ The term "weblog" was coined by Jorn Barger on 17 December 1997. The short form, "blog," was coined by Peter Merholz, who jokingly broke the word weblog into the phrase "we blog" in his blog Peterism.com in April or May 1999.
- ❖ A blog used for the sole purpose of spamming is known as a Splog.
- ❖ A blog search engine is one that searches blog contents. One special blog search engine is Technorati.

### SOCIAL NETWORKING

Social networking websites function like an online community of Internet users. They provide a virtual community in which the members with common interests in hobbies, religion or politics may communicate with each other. This socialisation may include reading the profile pages of other members and possibly even interacting with them.

Some of the social networking sites are:

- Facebook
- Twitter
- LinkedIn

Let us discuss about Facebook.

#### Facebook

Facebook is a social networking website launched on February 4, 2004. It is a free-access website founded by Mark Zuckerberg, when he was a student at Harvard University. This website currently has more than million active users worldwide. Users can join networks organised by city, workplace, school and region to connect and interact with other people.



People can also add friends, send messages and update their personal profile to notify friends about themselves.

### Advantages Of Facebook

- ❖ Facebook keeps you informed when your friends update their profiles, add images or news to their blogs.
- ❖ You can add photos and photo albums to your Facebook profile.
- ❖ Search and browse for people on Facebook to make them your friend.
- ❖ You can upload songs and videos to your profile.
- ❖ You can chat with people in your friends list.

### JUST UPDATE

On 19th Feb 2014, Facebook buys WhatsApp messenger. It is a very popular Instant Messenger for Smartphones.



### GLOBAL POSITIONING SYSTEM

You have heard about satellites being launched and successfully placed into orbits to move around the earth. Do you know that some of these satellites can tell you and your parents the exact location, where you are with the help of advanced technology. Let us learn about the positioning system.

A satellite based navigation system, made up of a network of satellites to transfer signal information or locate positions at any point on earth is called Global Positioning System (GPS). A pocket-sized device called GPS Receiver, with the help of signals received from these satellites can tell its user the location or position at any moment.



A mobile phone programmed with 'GPS Phone Tracker' transforms a Smartphone into a GPS tool to create a system that allows people to see where you are, what your speed is (if travelling) and the time.

The GPS is used in cars, boats, ships, airplanes and cellular phones. For example, the base maps displayed on the GPS screen in your car gives you guidelines to travel in the right route. The service is available round the clock anywhere in the world and is not dependent on weather.



such as **Twitter**, that allow bloggers to share thoughts and feelings instantly with friends and family and is much faster than e-mailing or writing.

### Advantages Of Blogging

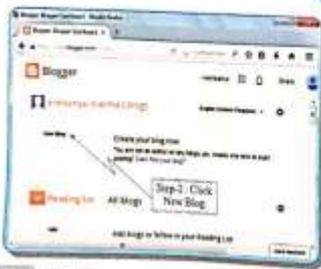
- ❖ Blogs allow you to share your ideas and views.
- ❖ The cost of blogging is very low. It may be the cheapest form of advertising.
- ❖ Blogs also allow you to speak directly to your customers.
- ❖ Blogs are a positive way of getting feedback, as readers react to certain pieces of information and suggest story ideas.
- ❖ Blogs build the profile of the writer, showcasing his/her talent and expertise.
- ❖ Blogs make education demand-oriented and participant-centered.

There are several sites which provide blogging facility. Some of the popular blogging websites are:

- www.wordpress.com
- www.livejournal.com
- www.blogger.com
- www.tumblr.com

### How To Create A Blog

**Step-1** Open any of the blogging website, for example, [www.blogger.com](http://www.blogger.com) and fill the required details to **Sign in**. (If you do not have an google account, create it). Your account window appears.



**Step-2** Click **New Blog** button. A new window appears.

**Step-3** Enter the title in the **Title** box.

**Step-4** Enter the address in the **Address** box.

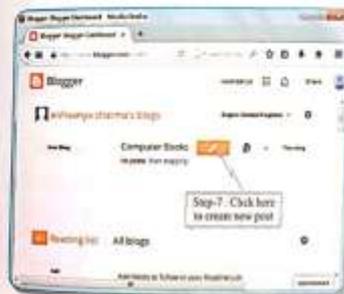
Note the following symbols:

- This indicate that the address you have entered is available.
- This indicate that the address you have entered is not available.



Your address should be available otherwise you cannot move forward.

**Step-5** Choose a template from **Template**.

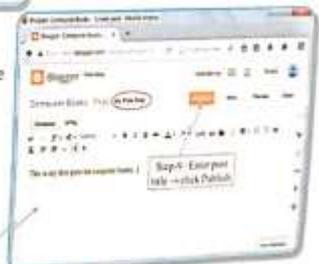


**Step-6** Click **Next** button. A new window appears.

**Step-7** Your blog is created. Click **Next** to create new post. A new window appears.

**Step-8** Type the text for the post in the text area.

**Step-9** Enter the post title in the **Post** box and Click **Next** button.



**Step-8** Type the text here

### Working Of GPS Using A Smartphone

Let us learn how GPS works on a Smartphone. Make sure that you are connected through Internet.

**Step-1** Select icon present at the bottom of the Smartphone screen. A new screen appears.

**Step-1** Select icon



**Step-2** Select icon. A new screen appears.

**Step-2** Select icon



**Step-3** Select icon in the **Search** box. A new screen appears.

**Step-4** Enter the starting and destination point using virtual keyboard. A new screen appears showing the route.

**Step-3** Select icon



Screen showing the route

**Step-5** Select icon to start navigation.

Listen to the voice that prompt you to begin the trip. Notice the arrow sign . It will move as you move through the route.

### Key Points

- ❑ Commerce involves buying and selling of a product.
- ❑ E-commerce is buying and selling of products online.
- ❑ Security and trust are the key factors in e-commerce.
- ❑ There are many facilities on the Internet like online news, newsgroups, online shopping, video conferencing, blogs, social media and social networking.
- ❑ A blog is a type of website which contains regular entries of commentary, descriptions of events or some other material such as graphics or videos.
- ❑ Social networking websites provide a virtual community in which the members communicate with each other and stay connected.
- ❑ Global Positioning System (GPS) is the navigation system made up of a network of satellites to transfer signal information or locate positions at any point on earth.

## Exercise

### A. Guess who am I



1. I am derived from the term weblog.
2. I am the navigation system helps to locate the position on earth.
3. I founded Facebook.
4. I am the place on internet where you can exchange your views and ideas on different subjects.
5. I help people to talk face to face using internet.

### B. Answer the following questions:

1. What is the importance of ethics in e- commerce?
2. Explain the modes of e- commerce.
3. Write any five advantages of e- commerce.
4. Write a short note on e-commerce payment system.
5. List any four e-commerce sites.
6. Write any five advantages of blogging.
7. Write any five advantages and disadvantages of social networking site.
8. Explain GPS.

### C. Higher order thinking skills:

1. Reeta wants to purchase a phone from Amazon but she doesn't know the procedure of giving the account details. So guide Reeta with the steps to be taken for her purchase.
2. A foreign traveller named Rosie Waldman visited India to attend her friend's wedding. She is confused after reaching the airport. Her friend left a message giving her the address. She hired a taxi driver to reach her destination but she is unable to rely on him. Provide the steps that Rosie can take to safely reach to her friend's address to attend the wedding.



# Computer Ethics, Crime And Security



## LEARNER'S OUTCOME

After completing this chapter, you will be able to:

- define computer ethics
- define software piracy and its types
- list the various computer security issues
- list major ethical issues in computer
- define hacker and cracker

## INTRODUCTION

Computers are used now-a-days in almost all fields of life. This age is called the age of computers. Computers are used in education, business, manufacturing, designing, entertainment, research and development. It is one of the greatest inventions of our time. But as some great inventions are used by bad people to cause harm, similarly computers can also be used to cause harm.

## COMPUTER ETHICS

You must be aware of certain ethics related to the use of computers. Ethics are beliefs and rules. These rules state what is right and what is wrong. Ethics are important in our day-to-day life also.

The advancement of technology makes it possible for unethical and criminal activities to be carried out in a more sophisticated way. Children should thus be aware of moral and ethical issues, and must develop a good sense of social responsibility. There are always people who are violating the rules of society for "money" or sometimes just for "fun".

Let us discuss some of the major ethical issues in the world of computers now-a-days.

### Intellectual Property Rights

Property is anything you own. You have rights over your property. It is protected by law. Similarly, ideas and thoughts produced by the mind are also protected by law. It is illegal to use them without the permission of the owner or producer. The rights related to literary or artistic work, inventions and discoveries are called intellectual property rights.

### Copyright

You must have seen this © symbol. The © symbol is widely used. It means All Rights Reserved. This symbol shows the material to be the sole property of the owner. It is unlawful and unethical to use them without the permission of the owner. If some material is downloaded and used, you must acknowledge the author sincerely. This is called referencing.

## Software Piracy

Software piracy is the illegal reproduction and distribution of the software applications. Software piracy has a significant impact on the economy. It leads to job losses and revenue losses to the software companies. The different forms of software piracy are:

**End-User Piracy:** All software are licensed. When someone copies software without the appropriate license for each copy, it is called the end-user piracy.

**Internet Piracy:** Unauthorised copies downloaded over the Internet falls under Internet piracy.

**Pre-Installed Software Piracy:** When a computer manufacturer takes one copy of a particular software and illegally installs it on more than one computer, it performs pre-installed software piracy.

**Counterfeiting:** People make duplicate CDs of original software and sell them at low price. This activity falls under counterfeiting.

**Online Auction Piracy:** This is selling of software that is never authorised for resale by a third party. Some of the limitations of pirated software are:

- ♦ no warranty protection
- ♦ can contain viruses

## Privacy

Privacy is an important aspect of life. It is unethical to infringe the privacy of other people without the consent of the person.

If you are given permission to access someone else's computer and allowed to view his or her information, you must not disclose it to other people.

## COMPUTER CRIME

As in the case of other systems and fields, there are also crimes related to computers. Computer crimes result from the deliberate tampering with data and information.

The people who are associated with computer crimes are often called Hackers, Crackers, Virus Programmers, Breachers and Information Warriors. Whatever name they may have, they are the people who violate computer security.

A hacker is a person who breaks into a computer system to get illegal access to the information stored there. A hacker may not cause any harm to the system or organisation but hacking is still illegal and unethical.



A cracker is a person who breaks into a computer system just like a hacker, with the intention to steal passwords, files or programs for unauthorised use. They may sell the information to some other people for money. Crackers cause financial damages to an organisation.

## Multiple Choice Questions

Tick (✓) the correct option.

1. .... are beliefs and rules stating what is right and what is wrong.
- (a) privacy  (b) ethics  (c) None of these
2. Copyright means .....
- (a) All Rights Reserved  (b) Intellectual Right  (c) both (a) and (b)
3. Acknowledging the other for downloading and using the material is called .....
- (a) privacy  (b) referencing  (c) counterfeiting

## COMPUTER SECURITY

Computer security includes procedures and techniques that are designed to protect a computer from accidental or intentional theft, unauthorised access or manipulation.



Computer security breaches are often viewed as a disaster for the user because they can cause serious damages to both the individual user and the organisation. Such damages may include loss of revenue, valuable data loss, productivity loss, and many more which may even lead to bankruptcy. Computer security breaches are broadly divided into the following categories.

**Hardware breaches** can be both intentional and accidental. Cables, modems and phone lines are often vulnerable to security breaches.

**Software breaches** include computer viruses and password cracking.

**Networks** are used to transmit data and information, they may be trapped by unethical people to access information about the various aspects of a company.

**Natural disasters** like hurricanes, earthquakes and floods could cause security breaches.

Computer security controls are established and implemented to reduce security breaches.

## LAST WORDS

There are numerous laws to control computer crimes and numerous measures to control security breaches. Laws are revised, books are written and even many websites are dedicated to educate people about the harms and the ethical issues.

## Exercise

A. Guess who am I



1. I am the beliefs and rules of computers.
2. I am a symbol which shows the material is the sole property of the owner.
3. I break into a computer system to get illegal access to the information store.
4. I intentionally steal passwords files or programs for unauthorized use.

B. Answer the following questions:

1. Define the term ethics.
2. Differentiate between piracy and privacy.
3. Explain the different forms of software privacy.
4. What are the limitations of pirated software?
5. What are intellectual property rights?
6. Explain security breaches in computer.
7. What does a copyright symbol indicate?