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Ethics and Safety Measures in Computing

Learning Objectives

Ethics in computing or computer ethics is a set of principles which regulate the use of computers. This theme aims at making you aware of the ethics in computing while using the Internet. Further, in order to safeguard the computer and prevent it from attacks of viruses and hacking, etc. they will be taught certain safety features which need to be applied.

The Internet is a global system of inter-connected computer networks that use the standard Transmission Control Protocol/Internet Protocol (TCP/IP) to serve billions of users worldwide. It is also called a network of networks. It consists of millions of private, public, academic, business and government networks that are linked through networking technologies. The Internet carries vast information resources and services through the World Wide Web (www). This network offers different kinds of communication methods.

For example, Skype allows audio and video communication over the Internet. Social media sites (Facebook) allow people to post messages and then respond to the messages from one computer to another. Many websites (Twitter) also allow people to post comments and communicate.

Today, the Internet has become a major source of communication. It uses the tools for communication like e-mail, instant messaging and discussions. With the vast use of e-mail, the Internet has replaced the postal services because of the speed and convenience. It has also made communication easy and simple through the electronic communication system. In the e-mail, messages are typed, sent, stored on one's computer and can be retrieved later. Messages



Knowledge Scope



Advantages and disadvantages of using the Internet; A brief introduction to ethics in computing; Unethical practices prevalent in the society, related to Internet:

- Plagiarism
- Cyber bullying
- Hacking
- Phishing
- Spamming
- Individual right to privacy
- Software Piracy
- Intellectual property rights

can be sent to multiple addresses and the messages that are received can be forwarded to new recipients. For educational purposes, e-mail has become an important tool by which students can communicate and maintain a closer contact with the institutes at all levels of education.

Thus, the Internet has become a powerful communication tool. It has grown, expanded and spread throughout the world. It has advantages as well as disadvantages, which are discussed below:

Advantages of Internet

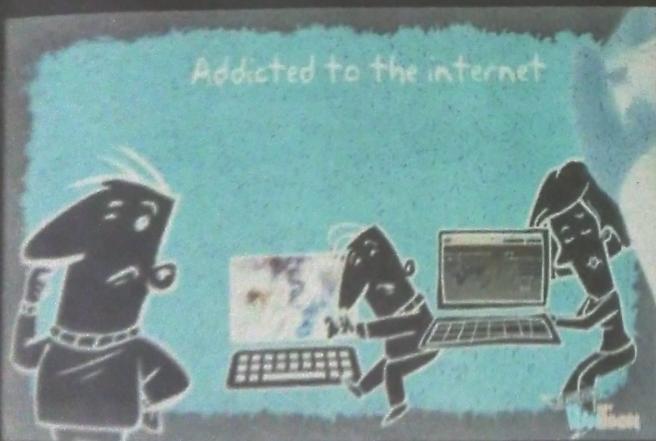
Some of the advantages of using Internet are discussed below:

1. Internet can be used for searching any information through various search engines.
2. The messages can be sent and received through e-mail on Internet.
3. It plays a significant role in research and development work.
4. It also allows video conversation with the relatives or friends through Skype or Facebook.
5. It promotes 24×7 online shopping (e-shopping).
6. It keeps a track of share and stock marketing (e-commerce).
7. Online banking can be used to purchase railway, flight or movie tickets.



Disadvantages of using Internet

Though, Internet is playing a significant role in today's digital world, it also has some disadvantages. Some of them are as listed below:



1. Hacking of personal profile or account has become a latest threat. Some mischievous people always look for hacking and misusing other's account.

Knowledge Scope



Meaning and a brief explanation of different unethical practices along with the preventive measures.

Safety measures to be taken while using the computer and Internet.

Parental assistance for minors, such as – viewing age appropriate websites, keeping strong password, not sharing passwords, frequently changing passwords, responding to emails only from known person or organisation, etc. Protection using Firewall (meaning and brief explanation).

Digital footprints (meaning and sensitising children about it.)

2. Chances of getting trapped into fraud advertisements.
3. Users get easily addicted to the Internet that hinders their other activities.
4. A lot of cyber-crimes are committed by using Internet.
5. Chances of attacking or spreading viruses through unknown mail or unwanted sites in the system.

Ethics

With the advancement of Information Technology (IT), the world is witnessing a vast change. We can use information as a powerful tool. As technologies give us wonderful ideas, powers, inventions, discoveries, we also come across many ethical dilemmas. While enjoying the fruits of information technology, we should ensure that the information is not misused or technology is not used to the disadvantage of the society and people at large.

Thus, ethics is a set of moral principles that govern the behaviour of a group or individual. However, computer ethics regulate the use of computers. Some common issues of computer ethics include intellectual property rights (such as copyrighted electronic content), privacy concerns, and how computers affect society.

Thus, it is essential to follow certain ethical values. Some of the ethical values are given below to make good relations with the people concerned, that will create a healthy environment.

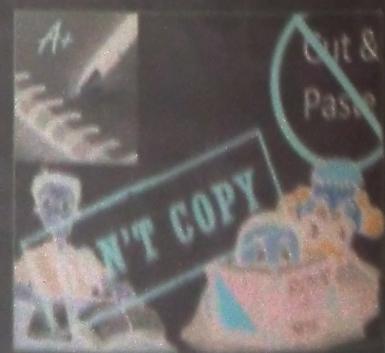
- While accessing Internet, always work in a healthy environment so that the objective is fulfilled.
- Do not copy or use proprietary software for which you have not paid.
- Never try to detect an error of a computer system or to correct it even, if a problem comes across at the time of working.
- Do not try to steal the secret information of any other computer.
- You must protect your document/confidential document by using password and note it in a diary in case you forget it.
- If you are working on Internet, you should not browse any unwanted website or open any type of mails of others by any means.

Unethical Practices

It may be possible to access someone's personal information on a computer system but computer ethics would advise that such an action is unethical. Here, some of the unethical practices that are prevalent in the society related to Internet are explained below:

Plagiarism

If you create or develop something (an application) on Internet then you become an absolute owner of your creation. It comes under intellectual property right. The copyright automatically goes to the creator. In case, someone uses your creation and produces as his own

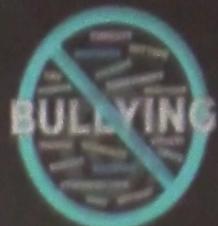


creation then it is the violation of copyright act. This act of stealing other's information is punishable under copyright act.

Thus, an act of copying other's creation and producing as own creation in same form or other is known as 'Plagiarism'.

Cyber Bullying

The term bullying is unwanted or aggressive behaviour shown by a person. The Internet has added some features for the children adopting such behaviour. Here, cyber bullying is the aggressive behaviour shown through text messages, chatting or video communication. The main source of cyber bullying can be seen on the social networking sites. These sites are basically created for instant communication among family members and friends. In today's world, they are unfortunately misused and leading into cyber bullying.



ENOUGH ALREADY!

Effect of cyber bullying

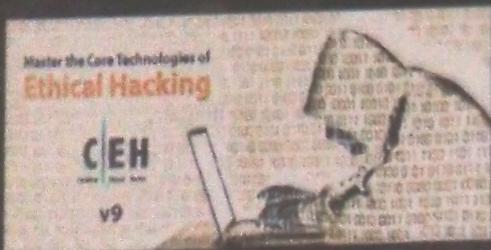
Some of the adverse effects of cyber bullying are listed below:

- Behaving rudely with the parents.
- Bunking classes during school periods.
- It affects deterioration in academic performance.
- It promotes unnecessarily quarrelling with friends and classmates.
- It also affects in health deterioration.
- It lessens one's self-confidence.



Hacking

The term "hacker" originally means the act of acquiring great skills and knowledge of computer systems. Therefore, Hacking can be defined as unauthorized use of computer and network resources. Unfortunately, these skills are applied in illegal activities viz. breaking passwords, releasing viruses to corrupt the computer system or stealing valuable data and information. In fact, it is a technique by which some computer experts can access the data from confidential areas of the system.



The people who are involved in this crime are called 'Hackers'. Sometimes, they also merge wrong information, viruses or corrupt data and thus make computer system a failure.

Reasons for Hacking

It is very difficult to know the reasons behind hacking. Every individual has his own opinion. However, some of the reasons are given below:

- It may be taken as a challenge and avail the services provided by the system without being acknowledged.

- People think that it is a part of excitement in the field of computer crime.
- Some people are mentally sick and want to apply their intelligence in anti-social activities. They cannot judge themselves for the consequences.
- People want to make destructive work as a tool for gaining knowledge and doing experiments.

Let us come forward to fight against hackers to stop environmental damage caused by them.

Phishing

In the cyber-world, phishing is a form of illegal act where fraudulently sensitive information is acquired viz. passwords, debit or credit card details by a person as a trustworthy or a business communication.



Strong indicators of phishing attempts.

There are some indications by which you can take safety measures. The indications are:

- If an e-mail addresses a user in a generic fashion (Dear, eBay member), it is likely to be an attempt at phishing. The appearance of links in the message:
e.g <http://www.google.com@members.thinkbank.com>
- The users may receive a message saying that they have to verify their account by following a link. In reality, the link is forged. It is very difficult to spot whether the link is manipulated or to commit this attack.

Conclusion

Phishing is a new kind of cyber-crime and method of committing online financial fraud. It reveals the high risk involved in communicating personal or confidential data, such as account numbers, credit card numbers through Internet. It is advisable to adopt reliable and secure technology based anti-phishing tools. It is need of the hour to gain general awareness on identifying and dealing with phishers. Let us come forward and fight against this crime.

Spam

When you connect a website and open your mail, you find that number of unwanted mails have come into your inbox from different parts of the world organizations. Sometimes, the titles of these messages are very fascinating. In fact, these titles compel you to read the mail/message. These unwanted messages of mailbox are called Spam. It is an attempt to force the message on people who would not otherwise choose to receive it. Most of the Spams contain commercial advertising, unconvincing products or get rich quick schemes. Spam costs the sender very little but the user very much. These unwanted messages not only waste the valuable time of the user but also occupy memory space of the system. They also send viruses through these messages and try to corrupt the system.



The different ways to stop a Spam are:

You know that the Spam may cause serious problems to your system. However, we can stop a spam by the following ways:

- Installing good antivirus software (also known as filters) in our computer system.
- Avoiding reading unwanted e-mail messages and delete them to keep inbox empty.

Software Piracy

When you purchase an original software, you become a licensed user. You have the right to use the software on a single computer but you cannot put copies on other machines or pass that software among your colleagues.

Thus, piracy comes in the way in terms of illegal distributions. The process of making copies of software without buying the appropriate license or copyright it is known as Software Piracy.



Ways to Avoid Piracy

Now-a-days, the duplication of the original software is the biggest problem. Although this is a severe problem but we need to take protective steps to avoid piracy.

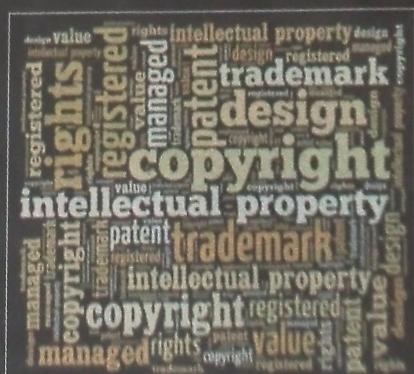
Some of the guidelines to avoid piracy are as follows:

- Always buy your software from a reputed organization.
- Make sure that your software comes with a license agreement, original disk and authentic packaging with copyright.
- Avoid buying of multiple software titles from different publishers on a single disk.
- If the seller provides the direction to obtain a serial number, it indicates that the software is not authentic.



Intellectual Property Right

Intellectual property means 'Ownership of Ideas' which is created by using skills and mental ability of the person. The development of software mainly requires the mental ability of creating first-hand knowledge, which is unique. The software/program originally developed by the person(s), become the intellectual property of the developers.



Intellectual software has the following properties:

- **Software Patents:** The patent right is given to the programmer for an invention of a particular software. Patent laws can be used to restrict the freedom of copying, use, distribution and modification of published information.

- Software Copyright: Copyright prohibits the users of a software program for making copies of it without the permission of the person/company concerned which issues the license for the program.
- Trademark: Trademark is an identity to preserve the software. A trademark sometimes becomes such a success that it is actually worth more than a product. It becomes the business of selling of an image of an identity rather than a product.

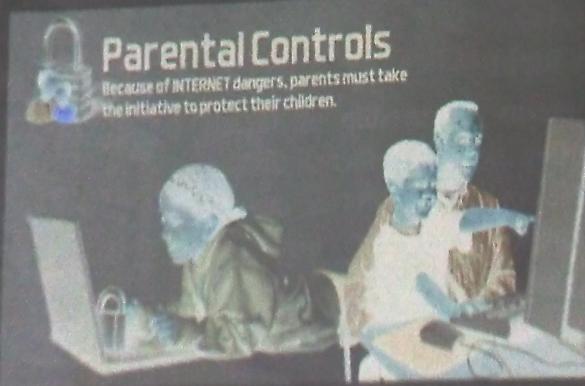
Safety precaution on Internet

The following safety precautions must be taken to avoid hacking, misused and trapped under fraudism:

- Don't share your personnel information like name, age, address, account number etc.
- Don't create a password based on your personnel information like last name, telephone number etc.
- Don't share your password with anyone although he/she is your close friend.
- Don't access irrelevant sites, open mails from unknown sources and comment anyone on social networking site.
- Don't try to download unknown software and e-mail attachments that may contain viruses.
- Use strong antivirus softwares for your computer.
- Don't get tempted towards unknown advertisement. You may be trapped for harassment.
- Don't send any kind of message bullying your friend or any unknown person over social networking sites like Facebook, twitter or whatsapp.

Parental Assistance

While the wards access Internet, the parents have a great role to play. The children also need some parental assistance so that it should be used in a healthy environment.



Here, some parental assistance for minors is enlisted:

- By viewing age appropriate web sites.
- By using strong password that cannot be cracked so easily.
- By not sharing password with any person.
- On frequent changing password.

- Responding to known email messages or attachments only
- By protecting computer with antivirus software. The antivirus must be latest such as 'Quick Heal' or 'Firewall' that recognises most of viruses.

Protection using Firewall

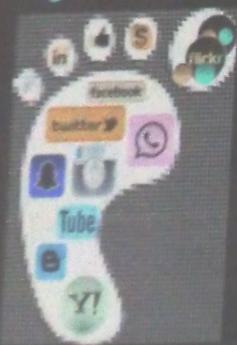
Data security is an important aspect while working on the Internet. While accessing the Internet, you need a security system to track incoming and outgoing data. To protect your data on the Internet, you can use Firewall protection system. It is designed to protect unauthorised accessing of messages from unknown network.

Thus, firewall is defined as a network security device that allows or rejects network access between an untrusted zone (the Internet) and a trusted zone (a private network). In fact, it acts as a two way traffic system and protects the computer system as well. Whenever a message is received, it is passed through Firewall for authentication. If it is from an authorised source then allowed entering your computer system otherwise, blocked.



One of the most important types is Proxy firewalls where it acts as a middleman. It accepts all traffic requests coming into the network. Only after an inspection, it decides to grant access and finally sends the information to destination computer.

Digital Footprint



Internet is very useful tool for getting information and sharing messages. Sometimes, it may happen that you leave information while accessing a site or passing messages through email. You may also leave your account logged-in unknowingly. Leaving used site or mail ID online is said to be 'Digital Footprint'. It may create problems to the owner if it goes to an unauthorised hand.

Hence, Digital Footprint is trailing information online about accessing a site or mail ID left unclosed or undeleted.

Chapter at a Glance

- The Internet is a global system of inter-connected computer networks.
- The unwanted messages of mailbox are called Spam.
- Phishing is a new kind of cyber-crime and method of committing online financial fraud.
- The word 'Hacking' can be defined as unauthorized use of computer and network resources.
- The people who are involved in this crime are called 'Hackers'.
- Ethics is a set of moral principles that govern the behaviour of a group or individual.
- An act of copying other's creation and producing as own creation in same form or other is known as 'Plagiarism'.
- The term bullying is unwanted or aggressive behaviour shown by a person.
- Intellectual property means 'Ownership of Ideas' which is created by using skills and mental ability of the person.
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- Don't share your personnel information like name, age, address, account number etc. with anyone.
- Don't share your password with anyone although he/she is your close friend.
- Don't be tempted towards unknown advertisement. You may be trapped for harassment.
- Digital Footprint is trailing information online about accessing a site or mail ID left unclosed or undeleted.
- Firewall is defined as a network security device that allows or rejects network access between an untrusted zone (the Internet) and a trusted zone (a private network).