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COMPUTER SECURITY

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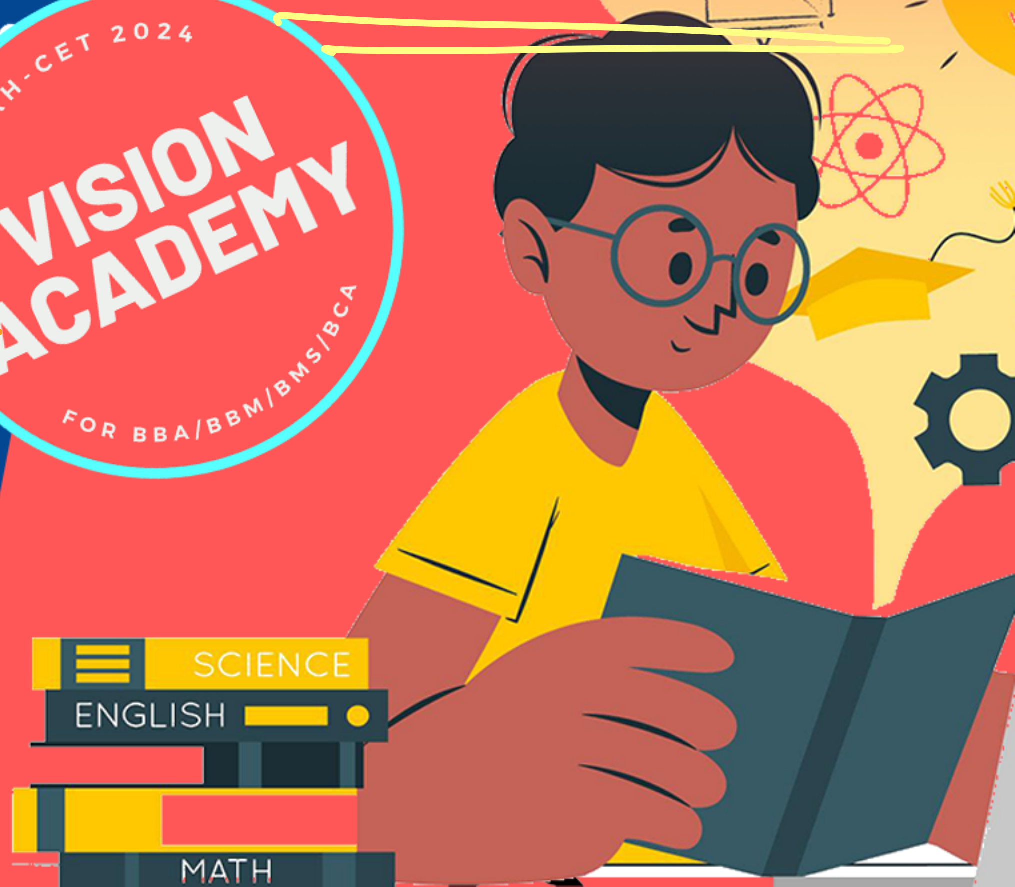

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Computer Security

Computer security is also known as cyber security or IT security. Computer security is a branch of information technology known as information security, which is intended to protect computers. It is the protection of computing systems and the data that they store or access.

Methods to Provide Protection

There are four primary methods to provide :

- System Access Control
- Data Access Control
- System and Security Administration
- System Design

System Access Control

It ensures that unauthorized users do not get into the system by encouraging authorized users to be security conscious.

For example, by changing their passwords on a regular basis.

Data Access Control

It monitors who can access what data, and for what purpose.

Your system might support mandatory access controls with these. The system determines access rules based on the security levels of the people, the files, and the other objects in your system.

System and Security Administration

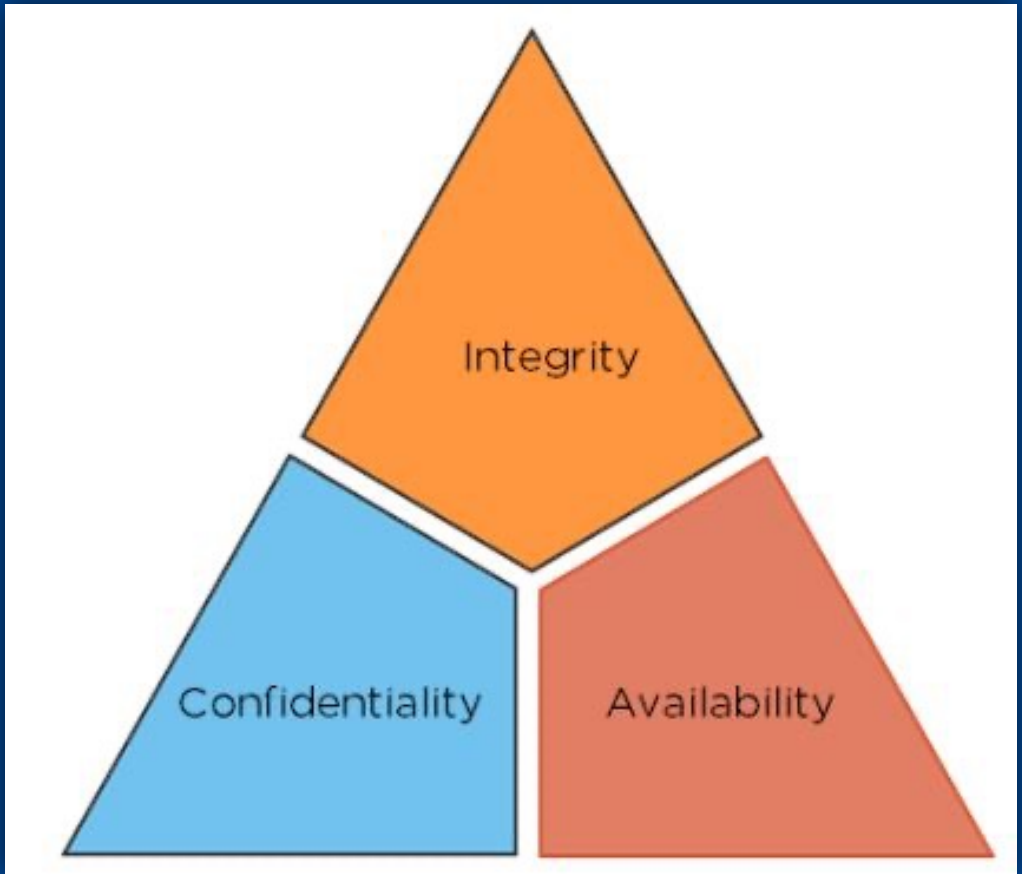
It performs offline procedures that makes or breaks secure system.

System Design

It takes advantage of basic hardware and software security characteristics.

For example, using a system architecture that's able to segment memory, thus isolating privileged process from no privileged processes.

Components of Computer Security



Confidentiality: It ensures that data is not accessed by any unauthorized person.

Integrity: It ensures that information is not altered by any unauthorized person in such a way that it is not detectable by authorized users.

Availability: It ensure that system work promptly and service is not denied to authorized users.

OR

Enabling access to data and resources

Some other components of computer security :

- **Authentication** It ensures that users are the persons they claim to be.
- **Access Control** It ensures that users access only those resources that they are allowed to access.
- **Non-Repudiation** It ensures that originators of messages cannot deny they are not sender of the message.
- **Privacy** It ensures that individual has the right to use the information and allows another to use that information.
- **Steganography** It is an art of hiding the existance of a message. It aids confidentiality and integrity of the data.
- **Cryptography** It is the science of writing information in a 'hidden' or 'secret' form and is an ancient art. It protects the data in transmit and also the data stored on the disk.

ABC → #?c

Source of Attack

- The most potent and vulnerable threat of computer users is virus attacks.
- A computer virus is a small software program that spreads from one computer to another and that interferes with computer operation.
- It is imperative for every computer user to be aware about this software and programs that can help to protect the personal computers from attacks.

The source of attack can be

- Downloadable Program
- Cracked Software
- E-mail Attachments
- Internet
- Booting from Unknown CD
- Malware
- Virus

Threats to Computer Security

Computer systems are vulnerable to many threat that can inflict various types of damage resulting in significant losses.

A threat is a potential violation of security and when threat gets executed, it becomes an attack. Those who execute such threats are known as attackers.

Hackers

Malware

harm causing

Malware stands for malicious software. It is a broad term that refers to a variety of malicious programs that are used to damage computer system, gather sensitive information, or gain access to private computer systems.

Malware is an unwanted software that any unauthorized person wants to run on your computer. These are known as security threats. It includes computer viruses, worms, trojan horses, rootkits, spyware, adware etc.

Virus

Virus stands for vital information resource under siege. Computer Viruses or perverse software are small programs that can negatively affect the computer. It obtains control of a PC and directs it to perform unusual and often destructive actions.

Viruses are copied itself and attached itself to programs which further spread the infection. The virus can affect or attack any part computer software such as the boot block, operating system, system areas, files and application program.

Effects of Virus

- Monitor what you are doing.
- Slow down your computer's performance.
- Download illegal files onto your computer without you being able to delete them.
- Destroy all data on your local disk.
- Generate IP address randomly and sends those IP address automatically.
- Affect on computer networks and the connection to Internet.
- Steal confidential information like password, account number, credit card information by random e-mailing.
- Damage data files.

Worms

- A computer worm is a standalone malware computer program that replicates itself in order to spread to other computers.
- Often, it uses a computer network to spread itself relying on security failures on the target computer to access it. Unlike a computer virus, it does not need to attach itself to an existing program.
- Worms are hard to detect because they are invisible files.

e.g., Bagle, I love you, Morris, Nimda etc.

Trojan

- A Trojan, or Trojan Horse, is non-self-replicating type of malware which appears to perform a desirable function but instead facilitates unauthorized access to the user’s computer system.
- Trojans do not attempt to inject themselves into other files like a computer virus. Trojan Horse may steal information, or harm their host computer systems.
- Trojans may use drive-by downloads or install via online games or Internet-driven applications in order to reach target computers. Unlike viruses, Trojan horse do not replicate themselves
- Example: Beast, Sub7.Zeus, ZeroAccess Rootkit etc.

Spyware

- Spyware is a program which is installed on computer system to spy on the system owners activity and collects all the information which misused afterwards. It tracks the user's behaviour and reports back to a central source.

- These are used for either legal or illegal purpose. Spyware can transmit personal information to another person's computer over the internet.

Spyware can harm you in many ways

- Steal your passwords.
- Observe your browsing choices.
- Spawn pop-up windows.
- Send your targeted e-mail.
- Redirect your web browser to phishing pages.
- Report your personal information to distant servers.
- Can alter your computer settings (like web browser, home page settings or the placement of your desktop icons).
- Can affect the performance of your computer system

Example : Cool Web Search, FinFisher, Zango, Zlob Trojan, Keyloggers etc.

Some other Threats

Spoofing : Spoofing is the technique to access the unauthorised data without concerning to the authorised user. It access the resourse over the network.

It also known as Masquerade.

Hacking: Hacking is the act of intruding into someone else's computer or network. Hacking may result in a Denial of Service (DOS) attack. It prevents authorised users from accessing the resources of the computer. A hacker is someone, who does hacking process.

Cracking: It is the act of breaking into computers. It is a popular, growing subject on the internet. Cracking tools are widely distributed on the internet. They include password crackers, trojans, viruses, war-dialers, etc.

Phishing : It is characterised by attempting to fraudulently acquire sensitive information such as passwords, credit cards details, etc. by masquerading as a trustworthy person.

Phishing messages usually take the form of fake notifications from banks providers, e-pay systems and other organisation. It is a type of internet fraud that seeks to acquire a user's credentials by deception.

Spam It is the abuse of messaging systems to send unsolicited bulk messages in the form of E-mails. It is a subset of electronic spam involving nearly identical messages sent to numerous recipients by E-mails.

Adware It is any software package which automatically renders advertisements in order to generate revence for its author. The term is sometimes used to refer the software that displays unwanted advertisements.

Solution of Computer Security Threats

To safe the computer system from unauthorized access and threats, it is necessary to design some safeguards that handles these efficiently.

- **Antivirus Software**
- **Digital Software**
- **Digital Signature**
- **Firewall**
- **Password**
- **File Access Permission**
- **Intrusion Detection System**
- **Secure Socket Layer(SSL)**
- **IP Security Protocol**

1. If your computer rebooting itself then it is likely that

[✓ A. It has a virus]

B. It does not have enough memory

C. There is no printer

D. There has been a power surge

E. It need a CD-ROM

2. Junk E-mail is also called ?

[✓ A. Spam]

B. Spoof

C. Sniffer script

D. Spool

E. None of these

3. A person who uses his or her expertise to gain access to other people computers to get information illegally or do damage is a

A. Spammer

[✓ B. Hacker]

C. Instant messenger

D. All of these

E. None of these

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4. Vendor created program modifications are called ?

[✓ A. Patches]
B. Anti-viruses
C. Hales
D. Fixes
E. Overlaps

A

Photoshop (Adobe)

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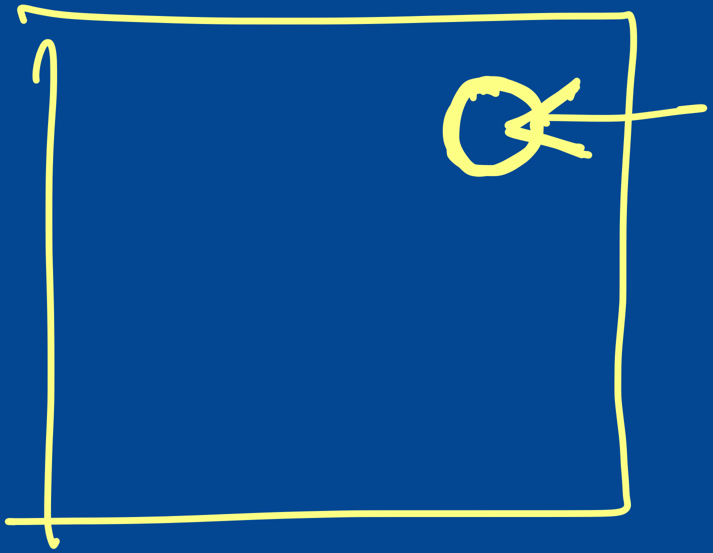
5. A _____is anything that can cause harm.

[✓ A.] Vulnerability
~~B.~~ Phishing
C. Threat
D. Spoof
E. None of these



6. A...... is a small program embeded inside of a GIF image.

A. Web bug
B. Cookie
[✓ C.] Spyware application
D. Spam
E. None of these above

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7. A hacker contacts your phone or E-mails and attempts to acquire your password is called.

A. Spoofing

[✓ B. Phishing]

C. Spamming

D. Buging

E. None of these

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8. The phrase......... describes viruses, worms, trojan horse attack applets and attack scripts.

[✓ A. Malware]
B. Spam
C. Phishing
D. Virus
E. None of these

A

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9. Hackers often gain entry to a network be pretending to be at a legitimate computer

A. Spoofing

B. Forging

[✓ C. IP spoofing]

D. None of these

10. The ___ of a threat measures its potential impact on a system.

A. Vulnerabilities

B. Counter measures

[✓ C. Degree of harm]

D. Susceptibility

E. None of these

11. The main reason to encrypt a file is to

A. Reduce its size

[✓ B. Secure it for transmission]

C. Prepare it for backup

D. Include it in the start-up sequence

E. None of the above

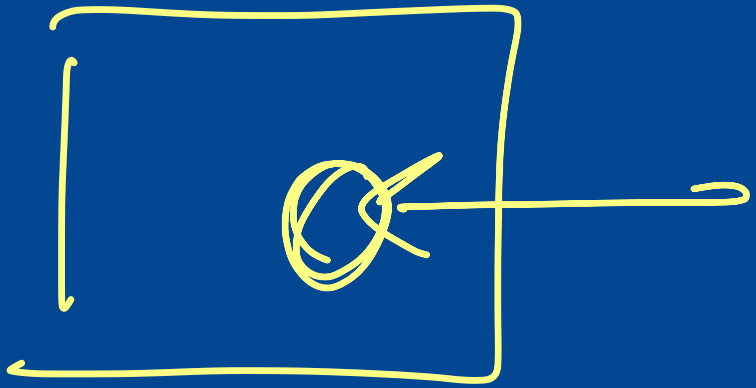
12. A digital signature is

A. Scanned signature
B. Signature in binary form
[✓ C. Encrypting information]
D. Handwritten signature
E. None of the above

13. Mechanism to protect network from outside attack is

A

[✓ A. Firewall]
B. Anti-virus
C. Digital signature
D. Formatting
E. None of these



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14. A firewall operated by

A. The pre-purchase phase

B. Isolating intranet from extranet

[✓ C. Screening packets to/from the network and provide controllable filtering of network traffic]

D. All of the above

E. None of the above

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15. Which one of the following is a cryptographic protocol used to secure http connection?

A. Stream Control Transmission Protocol(SCTP)

[✓ B.] Transport Layer Security (TLS)

C. Explicit Congestion Notification (ECN)

D. Resource Reservation Protocol (RRP)

E. None of the above

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