Welcome to the CoGrammar

Intro to CyberSecurity

The session will start shortly...

Questions? Drop them in the chat. We'll have dedicated moderators answering questions.

Cyber Security Session Housekeeping

- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(Fundamental British Values: Mutual Respect and Tolerance)**
- No question is daft or silly - **ask them!**
- There are **Q&A sessions** midway and at the end of the session, should you wish to ask any follow-up questions. Moderators are going to be answering questions as the session progresses as well.
- If you have any questions outside of this lecture, or that are not answered during this lecture, please do submit these for upcoming Academic Sessions. You can submit these questions here: **Questions**

Cyber Security Session Housekeeping cont.

- For all **non-academic questions**, please submit a query: **www.hyperiondev.com/support**
- We would love your **feedback** on lectures: **Feedback on Lectures**
- Find all the lecture **content** in you **Lecture Backpack** on GitHub.
- If you are **hearing impaired**, please kindly **enable captions** on Google chrome/Microsoft Edge via the accessibility settings.

Stay Safe Series:

Mastering Online Safety One Week/step at a Time

While the digital world can be a wonderful place to make education and learning accessible to all, it is unfortunately also a space where harmful threats like online radicalisation, extremist propaganda, phishing scams, online blackmail and hackers can flourish.

As a component of this BootCamp the *Stay Safe Series* will/is designed to guide you through essential measures in order to protect yourself & your community from online dangers, whether they target your privacy, personal information or even attempt to manipulate your beliefs.

Trustworthy Websites: How to Spot Secure Sites

- Look for the padlock.
- Check if there is a valid SSL/TLS certificate.
- Look for a site seal.
- Check if the URL is legitimate.
- Pop-up and Redirection ads are a red flag.

Learning Objectives & Outcomes

- Explain the importance of cyber security in protecting information.
- Identify types of cyber attacks.
- Recognise the impact of cybercrime.
- Identify types of malware.

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CyberSecurity
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CyberSecurity

Have you ever experienced unexpected or out-of-the-ordinary strange behaviours from your computer?

CyberSecurity

Can you think of some potential reasons you computer exhibited these behaviours?

Polls

Please have a look at the poll notification and select an option.

Have you ever had malware on your computer?

A. Yes
B. Unsure
C. Never

Polls

Please have a look at the poll notification and select an option.

What is malware?

A. Software designed to harm or exploit systems
B. A program that helps clean the computer
C. An operating system for secure computing
D. A hardware component used for internet connections

CyberSecurity

Processes used to protect computers, networks, and programs from unauthorised access or attacks intended to harm an individual or organisation.

- Broad Field.
- Daily activities extended into cyberspace.
- Cybercrime, cyberterrorism, and even cyber warfare.
- Financial loss or data privacy breaches.

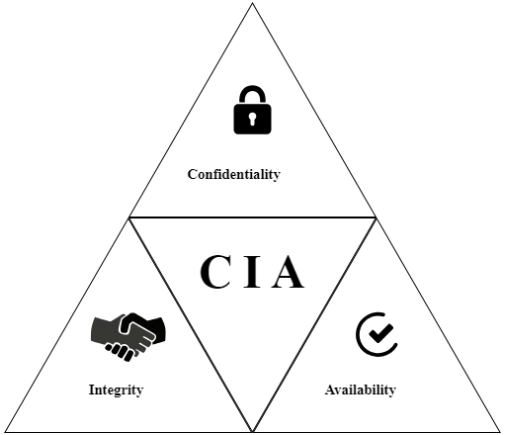
Categories of CyberSecurity

- Systems
  - Includes elements such as firewalls, encryption, and passwords.
- Software and Platform
  - Refers to using the best coding practices to prevent bugs that may lead to vulnerabilities.
- Infrastructure Security.
  - Consists of network and hardware security as well as cyber-physical and physical security.

NO UNAUTHORISED ACCESS

CIA Triad

- Confidentiality, Integrity, and Availability of Information
- Guides defending against threats and detecting problems



Confidentiality

- Protecting against the risk of unauthorised access and leaking of information.
- Includes personal or proprietary information, especially sensitive data related to a person's health or finances.

Integrity

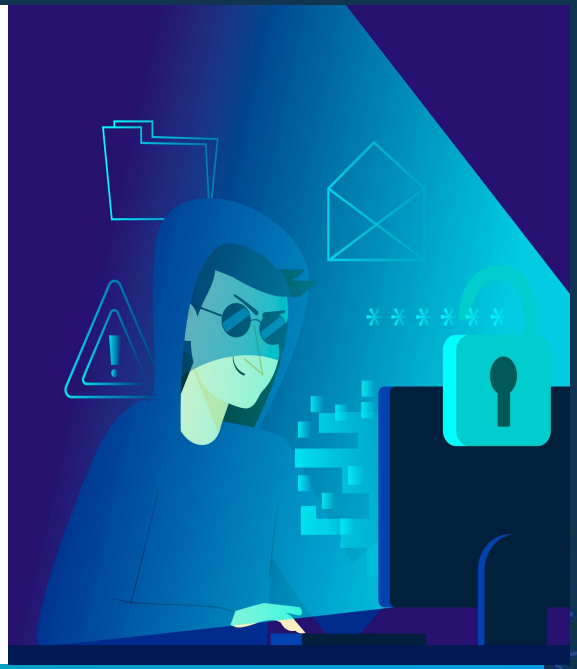
- Protecting information from unauthorised modification.
- Also involves addressing several social-technical issues.

Availability

- Preventing unauthorised access that denies illegitimate users from accessing and modifying information.
- Also refers to creating systems that promote security while maintaining efficiency.

Cyber Attacks

- Has different types of motives.
- Crimes that can be committed easier with the use of technology are referred to as cyber-enabled.
  - Cyberbullying, doxing, advance-fee fraud



Cyber Dependant Attacks

- Email spam
  - Unsolicited bulk emails enticing people to buy fake products.
- Phishing
  - A subset of spam emails.
  - Acts as a legitimate source.
  - Users are persuaded to provide login credentials.
  - "spear" phishing targets a specific individual or organisation.
- Financial malware
  - Records credit card or user credentials when a user visits a website of interest to criminals.

Cyber Dependant Attacks

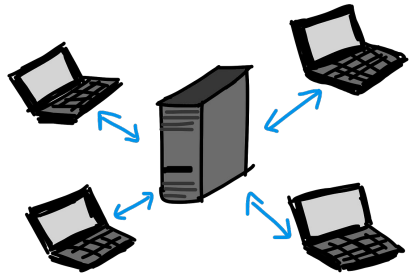
- Click fraud
  - Bots are used to click on web adverts to defraud advertisers.

- Unauthorised cryptocurrency mining
  - Computers are infected with malware to mine cryptocurrency.
  - Webpages can also be infected with scripts that use visitors' computers to mine.

- Ransomware
  - Users' files are encrypted and held for ransom.

Cyber Dependant Attacks

- Denial of service (DoS)
  - Server bandwidth is consumed to slow down or disable a system via the network.
  - Can happen legitimately but it can also be deliberately engineered.
  - Distributed DoS: multiple connected online devices (botnets) flood a target website with traffic.

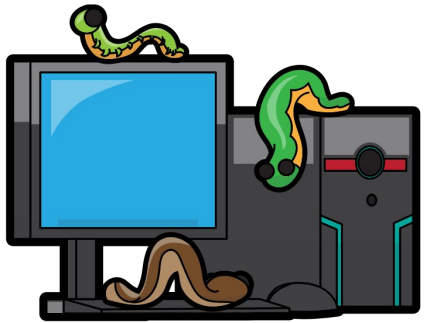


- Man-in-the-middle attack
  - A conversation or data transfer is intercepted.
  - Attacker can access confidential information or insert malware.

Types of Malware

- Standalone or Dependant
  - Worms and botnets are standalone programs that will run once executed.
  - Viruses and Malicious browser plug-ins need a host program.

- Persistent or transient
  - Can be embedded in the file system
  - Can also reside in memory.



Types of Malware

- Layer of the System
  - Malware can run at different layers of the system
  - Malware that resides in a deeper layers will be harder to detect.

- Automatic or Activated
  - Malware can install and run itself or require the user to execute it.
  - Malware usually get executed accidentally.

Types of Malware

- Static or Dynamically updated
  - Most traditional malware is static
  - Some software can evade detection by updating via a malware server

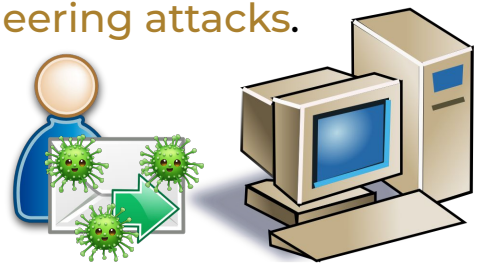
- Individual or Coordinated Network
  - Individual malware is designed to target an individual.
  - Coordinated networks(botnets) are used for DDoS, spam or phishing to a mass audience.

Potentially Unwanted Programs

- PUPs
  - Falls into a grey area between legitimate software and malware.
  - Gets downloaded alongside other software.
  - Has the potential to become malware and is classified as such.

Means of Infection

- Download of infected files via email attachments, websites, or file-sharing sites.
- Clicking on links to malicious websites.
- Visiting a compromised site.
- Inserting infected external hard drives or USB devices.
- Succumbing to social engineering attacks.



Fighting Infection

- Awareness. Be aware of the different methods being used.
- Notice strange behaviour exhibited by your computer.
- Anti-virus software can be used to scan your computer for infections and resolve them.

kaspersky

Avast

Summary

- CyberSecurity is the processes used to protect computers, networks, and programs from unauthorised access or attacks intended to harm an individual or organisation
- There is a wide range of cyber attacks with everything happening online. Even normal crimes can be committed easier with the use of technology.
- There are different types of malware that work in different ways. Some can be more difficult to detect and remove than others.
- Remember to look for signs of potential attack or signs that your computer has been infected and take appropriate steps.

Questions and Answers

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Thank you for attending

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Let’s take a short break

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