




Welcome to the CoGrammar

Skills Bootcamp: Introduction 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](#)

Software Engineering Session Housekeeping cont.

- For all **non-academic questions**, please submit a query:
www.hyperiondev.com/support
- Report a **safeguarding** incident:
www.hyperiondev.com/safeguardreporting
- We would love your **feedback** on lectures: [Feedback on Lectures](#)

Safeguarding & Welfare

We are committed to all our students and staff feeling safe and happy; we want to make sure there is always someone you can turn to if you are worried about anything.

If you are feeling upset or unsafe, are worried about a friend, student or family member, or you feel like something isn't right, speak to our safeguarding team:



Ian Wyles
Designated Safeguarding
Lead



Simone Botes



Rafiq Manan



Charlotte Witcher



Nurhaan Snyman



Ronald Munodawafa



Tevin Pitts

Scan to report a
safeguarding concern



or email the Designated
Safeguarding Lead:
Ian Wyles

safeguarding@hyperiondev.com

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.





**SKILLS
FOR LIFE**
SKILLS BOOTCAMPS



Department
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CyberSecurity

October 2024

CyberSecurity

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



CyberSecurity

Can you think of some **potential reasons** your 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.

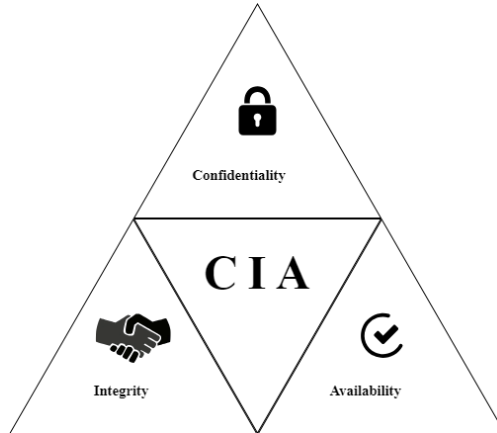
Categories of CyberSecurity

- 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.



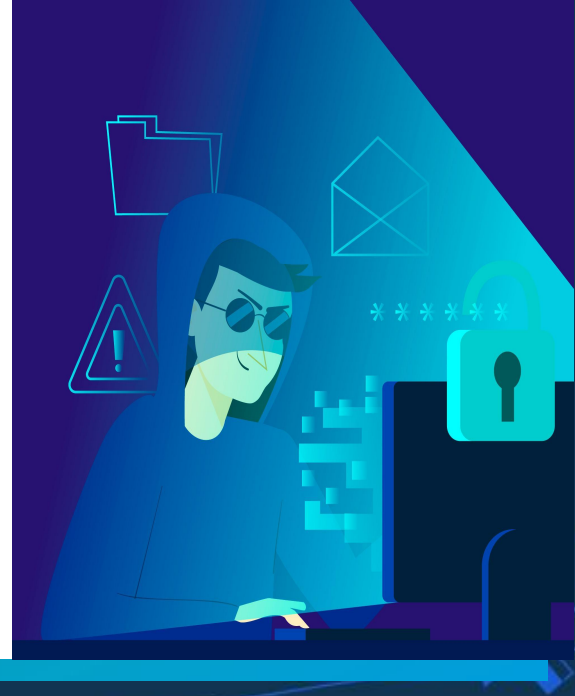
Availability

- 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.



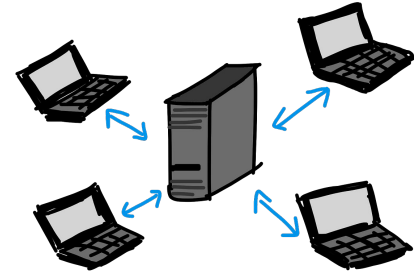
Cyber Dependant Attacks

- 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.

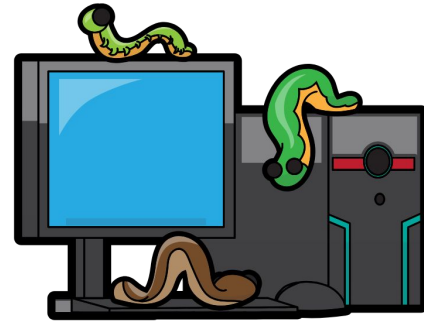


Let's take a break



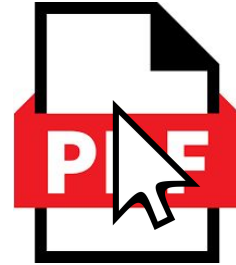
Types of Malware

- 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.



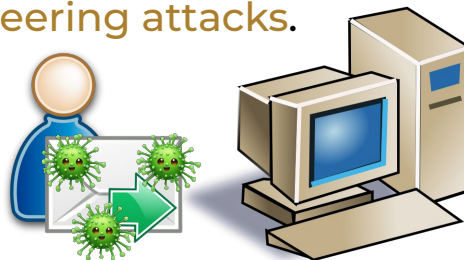
Potentially Unwanted Programs

- 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

Double the Security:

Why Two-Factor Authentication(2FA) is a Must

- Two-Factor Authentication (2FA) adds an extra layer of security by requiring not just a password but also a second form of verification, like a text message code or authentication app. This double-check significantly reduces the risk of unauthorized access, as even if someone steals your password, they still can't log in without the second factor.
- In a world where data breaches and hacking attempts are increasingly common, 2FA is a crucial defense for protecting sensitive information, whether for personal accounts or business systems, making it a must-have for anyone serious about their online security.

Polls

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

What does the term "phishing" refer to in cybersecurity?

- A. A type of malware that collects information
- B. A fraudulent attempt to obtain sensitive information by disguising as a trustworthy entity
- C. The process of encrypting files
- D. A method of securing data transfers

Polls

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

What do we call software that could become malware and usually gets downloaded alongside other software?

- A. Viruses
- B. Worms
- C. PUPs (potentially unwanted programs)
- D. Infectious

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



Thank you for attending



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