Basic Cybersecurity Principles

What is cybersecurity?

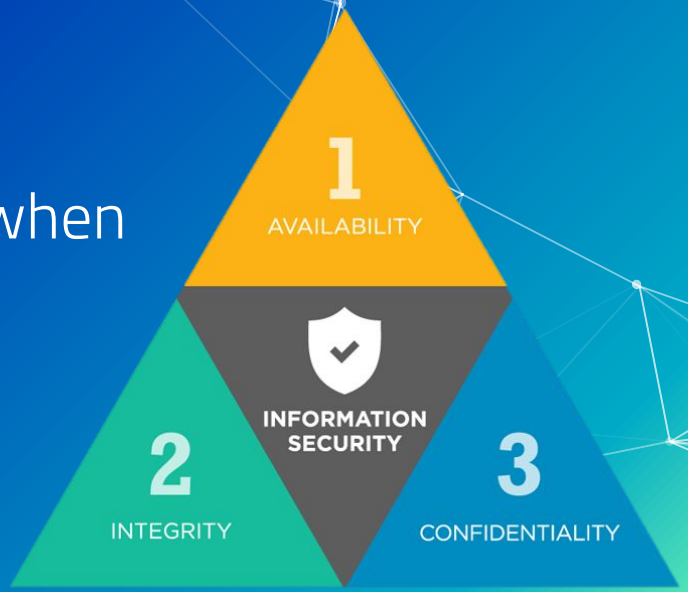
cybersecurity or information security is the protection of computer systems and networks from theft or damage to hardware, software, or electronic data and the disruption of misdirection of the services they provide

CIA Triad

Confidentiality: ensure that only authorized people have access to data

Integrity: ensure that data can be trusted

Availability: ensure that data is available when needed



Let’s Make some Analogies

- Confidentiality: Imposter(s) going into the vents
- Integrity: N a m e e v e r y t a s k
- Availability: Players making alibis for each other

Flexibility

Since hackers are often coming up with new ways to attack systems, so must those who are securing the systems.

- Zero-day vulnerabilities

Risk Management

It is impossible for us to solve all problems, so instead in cyber we target the problems that are the riskiest first.

1) Identify
2) Assess
3) Strategize
4) Implement
5) Monitor

Human Error

Humans are largely what lead to system exploitation, not flaws in the system itself.

- e.g. phishing, visiting unsecure websites, accidentally installing viruses

User Education

Because the weakest link is the person, it is important that people are aware of basic cybersecurity concepts.

- use a secure password that is not the same across all sites
- visit safe/not shady sites
- verify the identity of callers/email senders
- do not click on unknown links

Detection vs. Prevention

Detection:

- Finding suspicious connections on a network
- Looking for unauthorized users
- IS ACTIVE

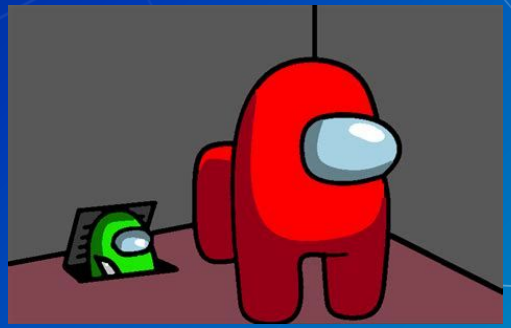
Prevention:

- Setting password requirements
- Configuring firewall rules
- IS NOT ACTIVE
- Mainly what CyberPatriot focuses on

NYES! More Among Us Analogies!

As a crewmate, how can you **detect** the imposter?

How can you **prevent** the imposters from killing you?



Which is more important?

Detection, not necessarily because it is more effective, but because nowadays preventative measures are not enough to stop cyber threats.

- Prevention can only stop so much
  - e.g. Zero-day vulnerabilities can appear
- Thorough detection ensures that the damage to a system/data is minimized

Now let’s try to apply what we learned last week to cyber security.

- How can permissions be insecure?
- Which letter in CIA pertains to this security aspect?
- Which method does this fall under?
- What permissions would you say are the most secure?