

Black Hats and White Hats – Careers in Cyber Security

Lesson 1

Task 1: Mix and Match

Job Title	Job Description
Cryptologist	builds and configure secure networking and routing infrastructure such as firewalls, VPNs, access controls
Network security specialist	also known as "ethical hackers," are commissioned by an organisation to look for any security weaknesses in an organisation's system.
Secure application developer	implement and build secure encryption mechanisms. They analyse existing systems for hiding data and determine vulnerabilities in modern encryption schemes. They also look to find ways to improve those same systems.
Penetration Testers	work with software developers to build secure websites and applications and ensure secure authentication, secure data transfer, prevent data leakage and secure login.
Digital Forensics specialists	ensure that organisations are adhering to private and government regulations (GDPR)
Compliance and Regulation officer	recover information from computers and other storage devices. They are responsible for assisting law enforcement officers with cybercrimes and to retrieve evidence.

Task 2: Group Work - The CIA Triad:

The three letters in "CIA triad" stand for Confidentiality, Integrity, and Availability. The CIA triad is a common model that forms the basis for the development of security systems. They are used for finding vulnerabilities and methods for creating solutions.



Form your own triad: In groups of three

- Discuss why you think each of these words is important in terms of data security?
- Record your answers on the diagram.
- Each person in the group is allocated one element of the triad and uses one of the websites below to write their own description of that element so that it will make sense to their other group members.

<https://www.fortinet.com/resources/cyberglossary/cia-triad#:~:text=The%20three%20letters%20in%20%22CIA,and%20methods%20for%20creating%20solutions.>

<https://www.f5.com/https://www.techtarget.com/whatis/definition/Confidentiality-integrity-and-availability-CIAom/labs/articles/education/what-is-the-cia-triad>

<https://www.bmc.com/blogs/cia-security-triad/>

- Each member of the group shares their answer and the group identifies one thing that is good about the answer and one way to improve it.
- Write the final answers on a post-it note.
- The class as a whole then forms a triad with their post it notes and students compare the explanations for each element.

Lesson 2: What is a hacker?

Task 3: Watch [“The Secret Life of a Hacker”](#)

- What were Hackers compared to at the start of the video?
- How do they describe hacking at the start of the video?
- What do they compare hacking to at the end of the video?
- Explain this comparison in your own words
- Can you think of a time that you may have acted as a hacker?
- Identify three ways hackers use the CIA triad.

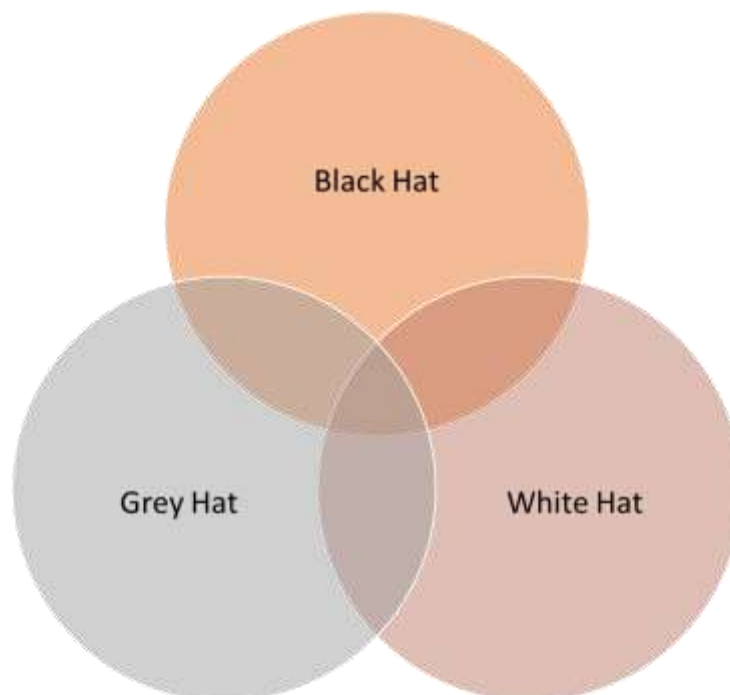
Task 4: White hats, black hats, grey hats

In your groups of three discuss what you think the different colours used to describe hackers are meant to symbolise.

Each person in the group is allocated a colour to investigate using the following headings

- Motivations
- Who gains?
- Who loses?
- One example

As a group complete the venn diagram to show the similarities and differences and differences between these hackers.



Lesson 3

Task 5 Watch “[Hackers: the Internet's immune system](#)”

- List some of the parts of the Ted Talk that stood out to you.
- Elazari talks about the Hactivist group Anonymous, do you think their illegal actions are justified? Where do you think the line should be drawn? Explain your answer.
- Elazari claims that we need hackers to keep the digital world safe. Summarise her main points during the Ted talk.
- Do you agree/disagree with Elazari’s claims, Explain why/why not?
- What colour hat would you give Elazari?

Task 6: Project Set Up

In your groups select a title from the list below.

Solo career hacker

Organised hacker group

Script Kiddies

Hactivist

Nation State Actors

Insider Threat

- Agree the questions you wish to ask about this type of hacker, these will be your headings.
- Decide on the format you wish to use to present your project.
- Find three sources of information.
- Ensure everyone in the group understands their next steps

Lesson 4 and 5

Task 7 Project development

Lesson 6 and 7

Task 8 Presentation of projects

Lesson 8

Task 9 Reflection

Identify a job in data security that would appeal to you.

Why does this job appeal to you?

What skills does it involve?

What Leaving Certificate subjects would develop these skills?

Identify companies or groups you could work for in Ireland.

Can you find someone who works in this role in one of these companies?

What qualifications might you need to get this job?

Design an advertisement for this job.