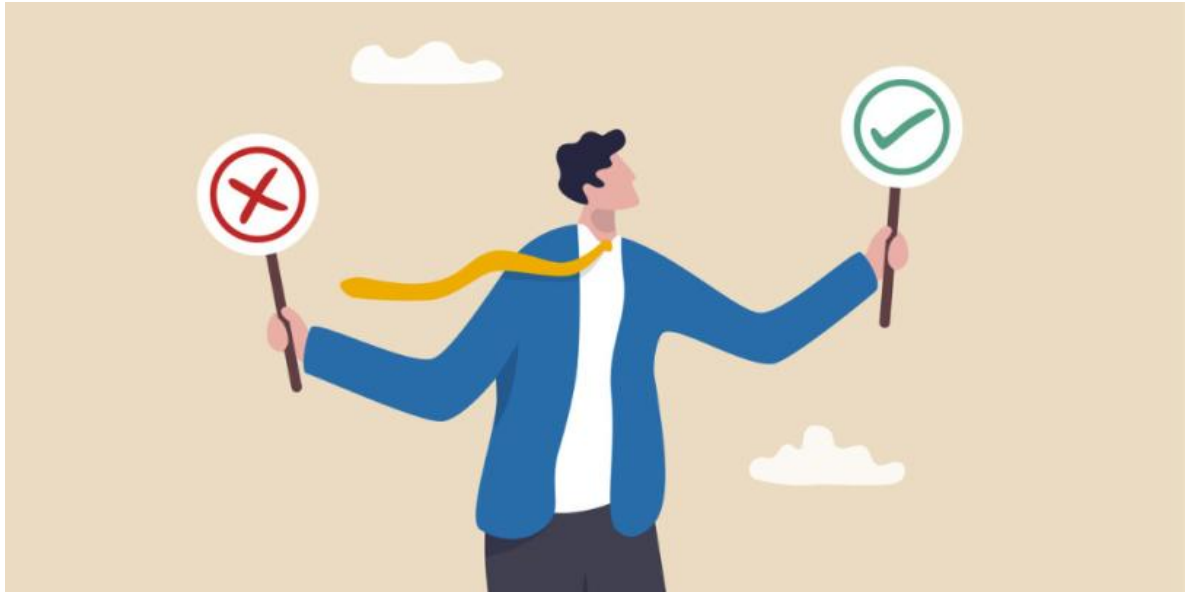
COMPUTER FUNDAMENTAL & ETHICS

COMPUTER ETHICS

ETHICS

Ethics is the branch of philosophy that deals with questions of morality—what is right and wrong, good and bad, fair and unfair.



Moral principles that govern the behavior of individual or group.

COMPUTER ETHICS

Computer ethics is the set of commonly agreed principles that govern the use of computers.

THE AUTONOMOUS CAR DILEMMA

You are a software engineer working on an AI system for self-driving cars. The car has been programmed to prioritize passenger safety but also must follow the law and protect pedestrians.

One day, during a test drive, the car faces an unexpected situation:

1) A group of five pedestrians suddenly crosses the road illegally.
2) The car's sensors detect that braking in time is impossible without severely injuring the passengers inside.
3) The only alternative is to swerve into a wall, which would likely kill the passenger but spare the pedestrians.

The car's AI has milliseconds to decide. As the engineer responsible for programming its behavior, you are tasked with defining how it should act in such scenarios.

The Ethical Questions:

1) Should the car prioritize the passenger's life or the pedestrians' lives? Why?
2) Does the fact that the pedestrians are crossing illegally matter in the ethical calculus?
3) How should accountability be assigned: to the AI, the company, the passenger, or the pedestrians?
4) Should car buyers be allowed to customize ethical settings, such as "protect passengers at all costs"?
5) How would public trust and market success be affected by the chosen ethical framework?

Core Principles in Computer:

Ethics Responsibility: Developers, users, and organizations should act responsibly to ensure their actions do not harm others.

Accountability: Those involved in the creation and use of technology should be accountable for its effects.

Transparency: Decisions, especially in systems like AI, should be explainable and open to scrutiny.

Fairness: Systems should operate without bias or favoritism, treating all users equitably.

Respect for Privacy: Individuals' rights to control their personal data must be protected.

Examples of Ethical Dilemmas in Computing

- Should companies prioritize profit over user privacy (e.g., selling user data)?
- Is it ethical for governments to conduct mass surveillance using computer systems?

Common Terminology

•

Intellectual Property:

Intellectual property is a category of property that includes comprehensible creations of the human intellect.

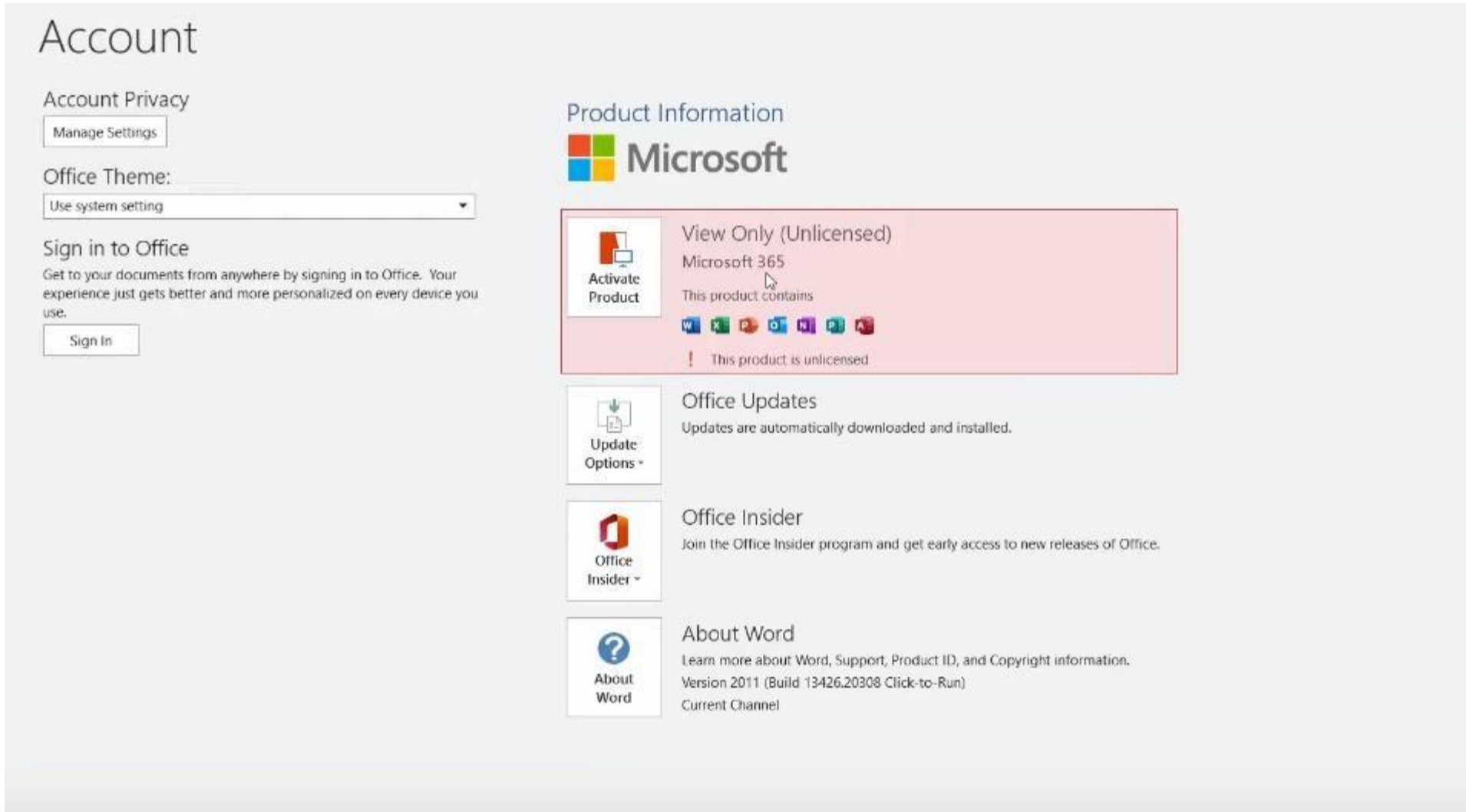
- **Copyright:** Copyright refers to the legal right of the owner of *intellectual* property.

In simpler terms, copyright is the right to copy. This means that the

original creators

of products and anyone they give authorization to are the only ones with the exclusive right to reproduce the work. Some ways to ensure copyright:

- **Copy guards** to prevent the duplication of works.
- **DRM** (Digital Rights Management) to protect unauthorized redistribution of digital media. Like subscription in Netflix
- **CPRM/CPPM (Content Protection for Recordable Media)** for controlling the copying, moving and deletion of digital media on a host device, such as a personal computer. It is a form of digital rights management (DRM)
- **Activation** to require license registration before use.


Account
Account Privacy
Manage Settings
Office Theme:
Use system setting
Sign in to Office
Get to your documents from anywhere by signing in to Office. Your experience just gets better and more personalized on every device you use.
Sign In
Product Information
Microsoft
Activate Product
View Only (Unlicensed)
Microsoft 365
This product contains
This product is unlicensed
Update Options
Office Updates
Updates are automatically downloaded and installed.
Office Insider
Office Insider
Join the Office Insider program and get early access to new releases of Office.
About Word
About Word
Learn more about Word, Support, Product ID, and Copyright information.
Version 2011 (Build 13426.20308 Click-to-Run)
Current Channel

Common Terminology

•**Trademarks:** Trademarks usually refers to protection of the use of a company's name and its product names, brand identity (like logos) and slogans.

Mc Donalds Registered Trademark

Copycat

•**Difference between Copyright and Trademark:**
Generally, copyrights protect creative or intellectual works, and trademarks apply to commercial names, phrases, and logos.

Common Terminology

Patent: A patent is the granting of a property right by a sovereign authority (Patent Office) to an inventor. This grant provides the inventor exclusive rights to the patented process, design, or invention for a designated period in exchange for a comprehensive disclosure of the invention.

- **License:**

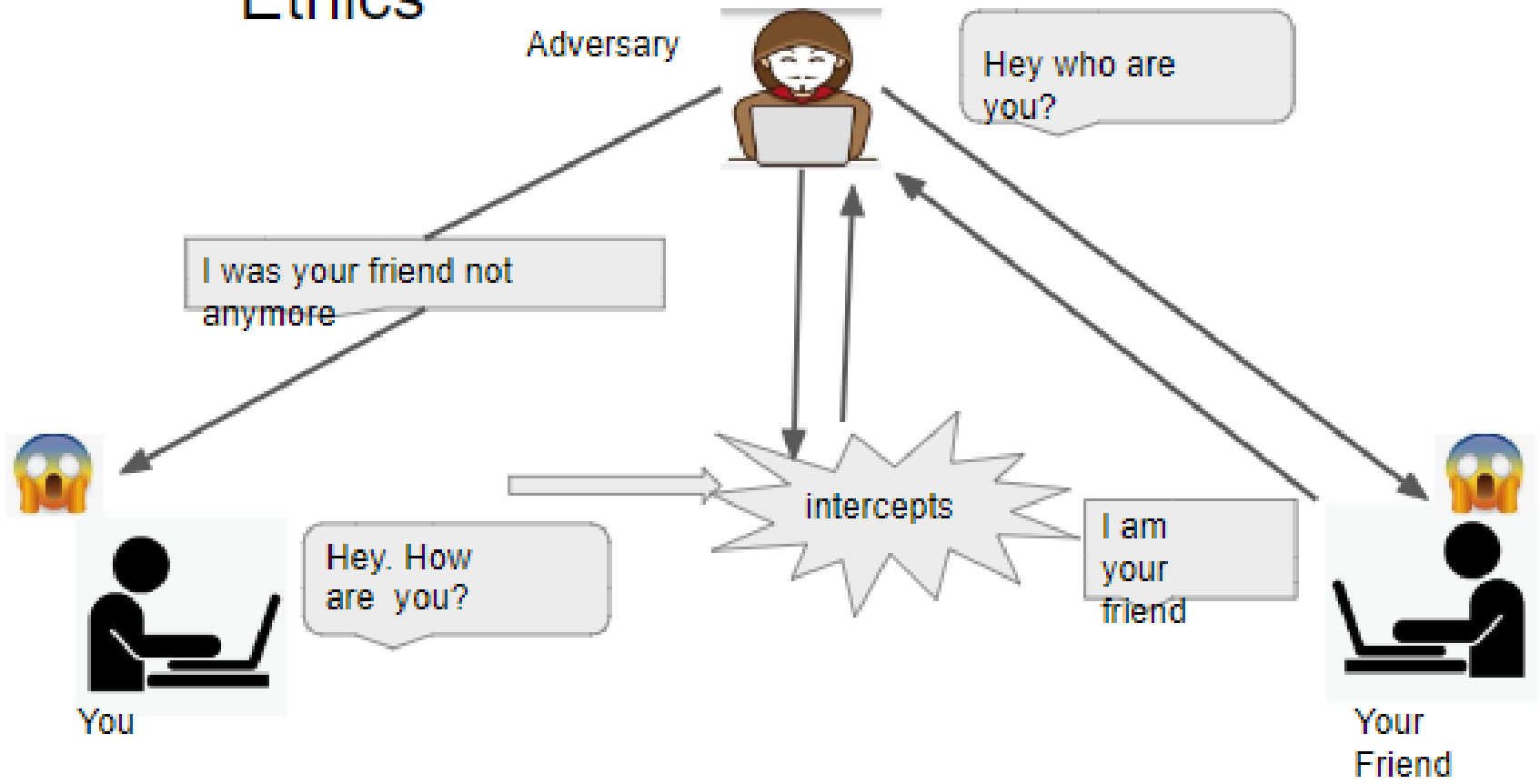
  If a company wants to use any intellectual property for which they do not own a copyright or patent then they need to come up with a legal agreement with the owner of the intellectual property in form of a **license** that would allow them to use the intellectual property according to the agreement.

Common Terminology

Types of License:

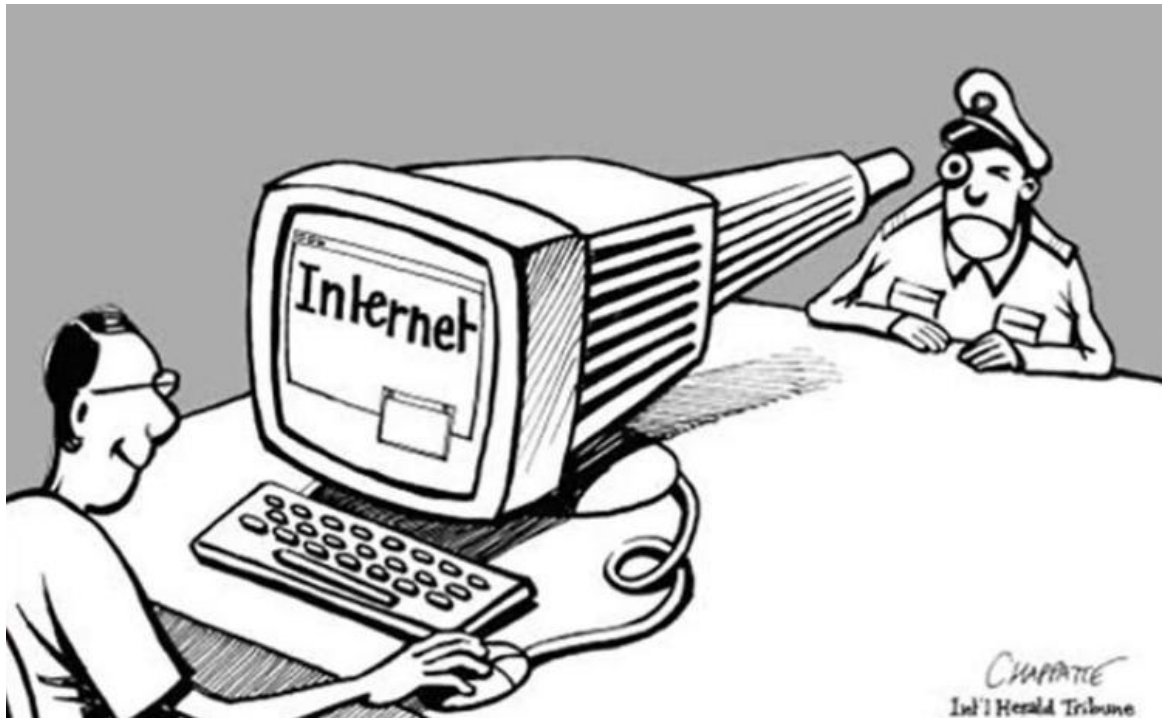
- **Cross-licensing:** Agreement between two or more parties where each party grants rights to their intellectual property to the other parties
- **Patent pools:** Agreement between two or more **patent** owners to license one or more of their **patents** to one another or to third parties.
- **Licensing fees** are paid as part of an agreement that defines the terms under which tangible property is licensed for use by one party (a “licensor”) to another (the “licensee”).
- **Non-exclusive licenses:** A Non-Exclusive licence grants to the **licensee** the right to use the intellectual property, but means that the licensor remains free to exploit the same intellectual property and to allow any number of other licensees to also exploit the same intellectual property.
- **Exclusive license**: An exclusive Licence means that no person or company other than the named licensee can exploit the relevant intellectual property rights.

Common Violations of Computer Ethics



Cyber Attacks

Cyberattacks are deliberate attempts by individuals or groups to breach computer systems or networks for malicious purposes.

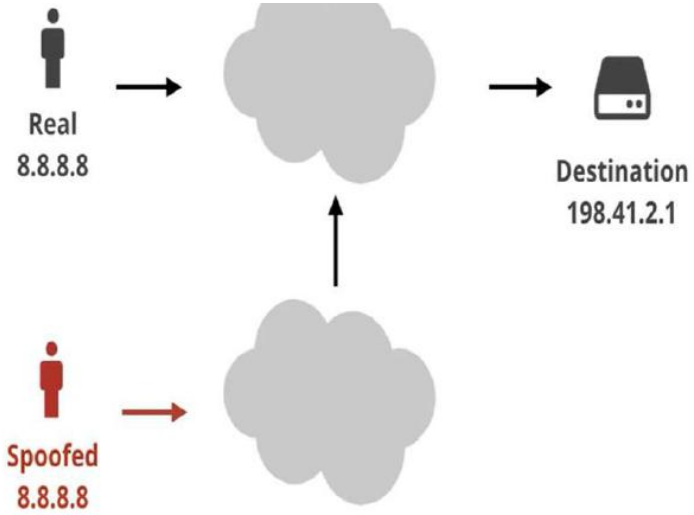


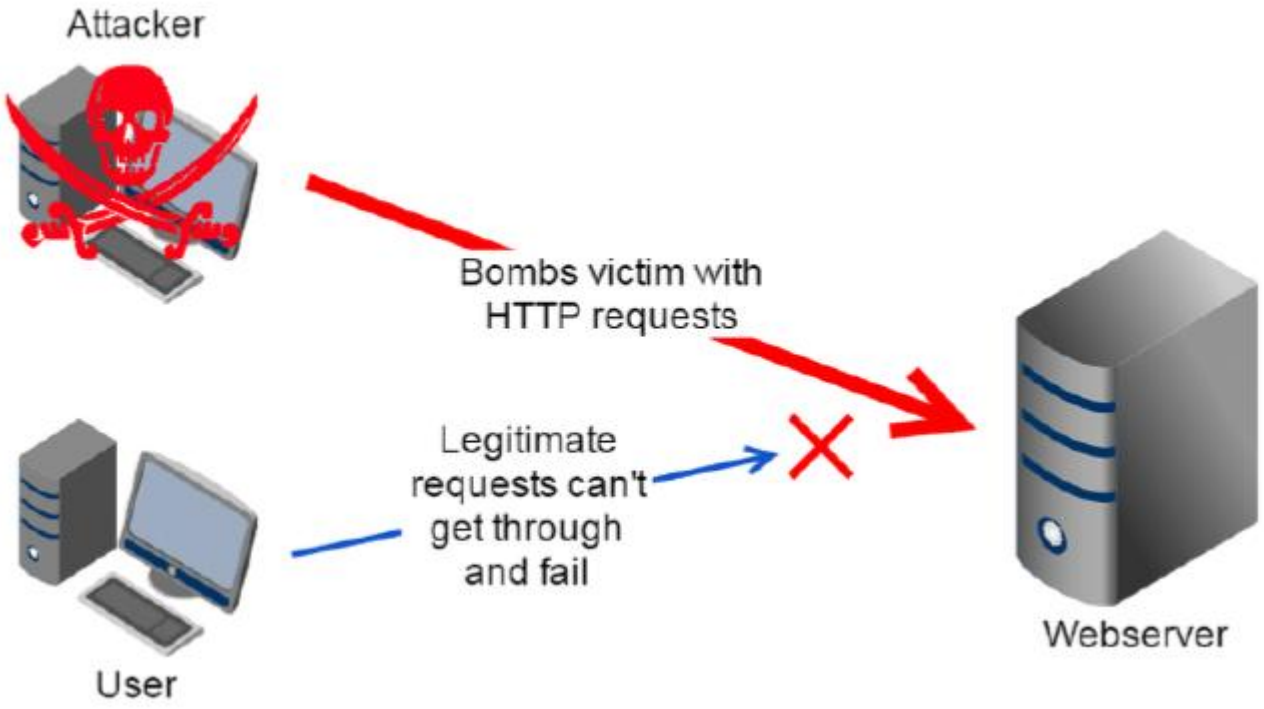
Section 54 (Not less than 7 years and more than 14 years or fine up to 1 crore Tk.)

Cyber Attacks

Cyber Attacks

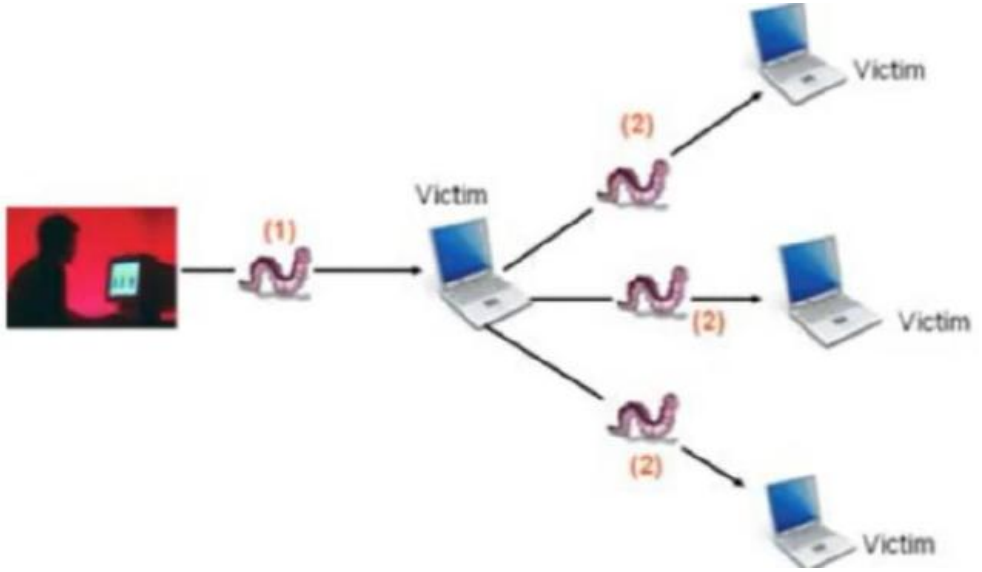
Cybercrimes are illegal activities that are carried out using computers or the internet.





Cyber Attacks

Viruses, Worms, Ransomwares

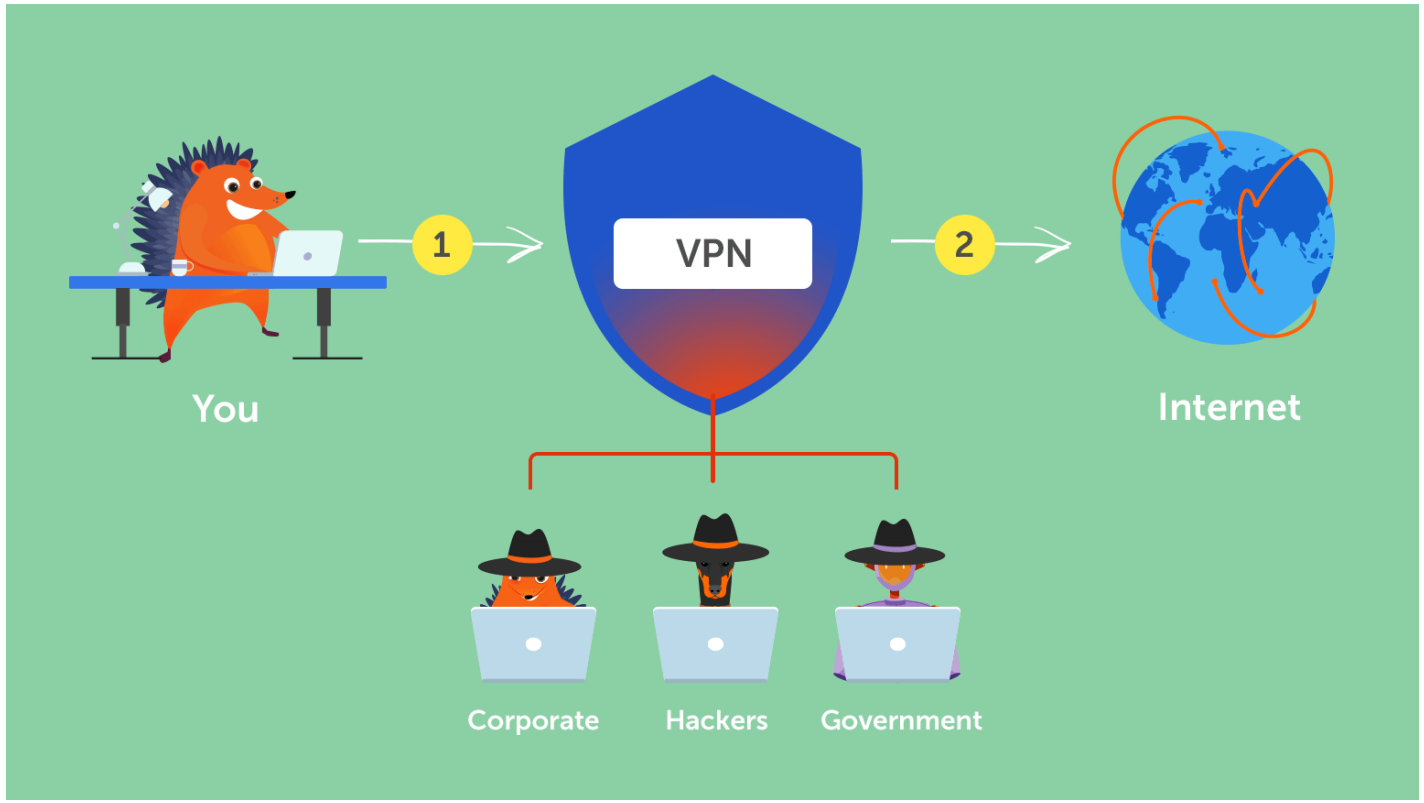


Cybersecurity (Practices)

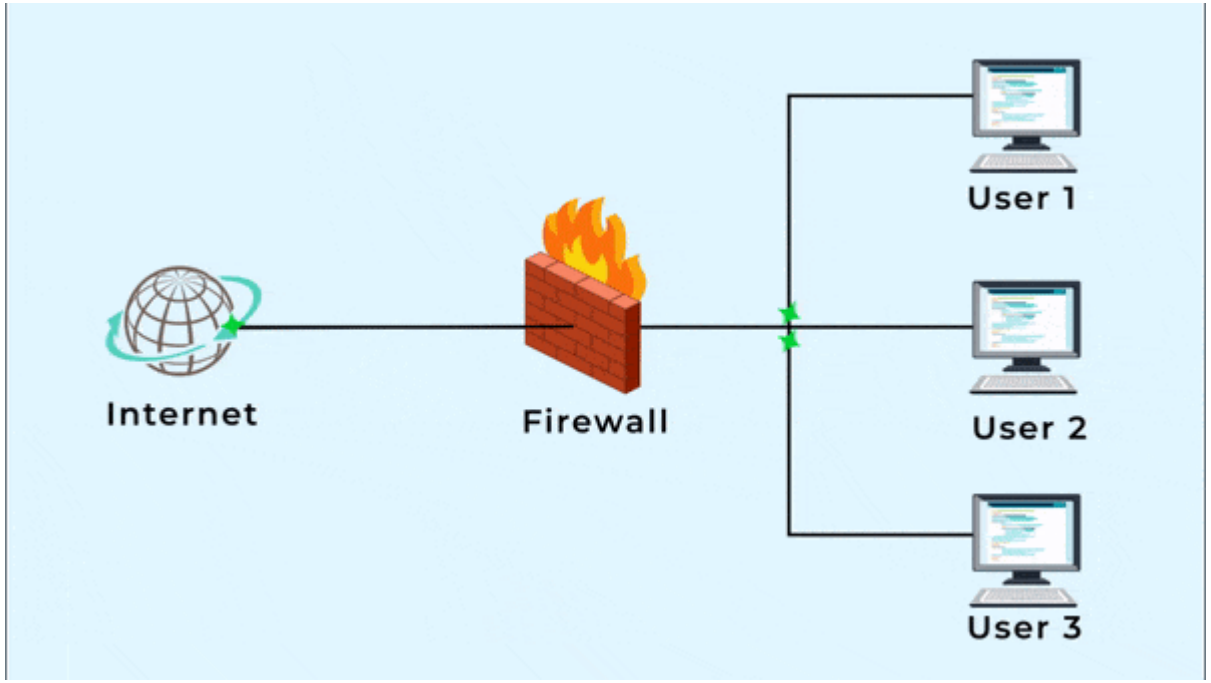
- Use Strong and Unique Passwords
- Enable Two-Factor Authentication (2FA)
- Avoid Clicking Suspicious Links
- Keep Software and Systems Updated
- Backup Data Regularly
- Use Secure Networks
- Educate and Train Users
- Log Out of Accounts After Use

Cybersecurity refers to practices, tools, and strategies used to protect computers, networks, and data from cybercrimes and cyberattacks.

Cybersecurity (Tools)



Cybersecurity (Tools)



Projects

- Software Development Project I (CSE 2100)
- Web Based Application Project (CSE 3100)
- Software Development Project II (CSE 3200)

Research Related

- Technical Writing and Presentation Sessional (CSE 2200)
- Project/Thesis (CSE 4000)
- Seminar (CSE 4208)

Research

- systematic way of asking questions and finding answers.

- **Steps in Research**

1.Identify a Problem

2.Explore Existing Knowledge

3.Experiment or Analyze

4.Share Results

Plagiarism

Plagiarism is the act of using someone else's work, ideas, or words without giving proper credit, and presenting it as your own.

•

Cite Your Sources

•Paraphrase Properly

•Use Quotation Marks

•Use Plagiarism Detection Tools