

# Ethics and Cybersecurity

Introduction to Digital Technology

IT-IDT-10

# Essential Questions

- What steps are involved in making ethical decisions?
- How has technology impacted the workplace and society?
- What are the consequences for violating copyright?



# Introduction



- Ethical decisions occur often
  - If action is legal or aligns with school policies
    - Will assist in making wise choices
- Society has benefited from computers
- Computers are also used to gain unauthorized access to documents
- Setting secure passwords will prohibit thieves
- Citing resources used in reports and projects are important
  - Do not violate copyright of owners of original works
    - Example: using images you did not create without pertaining permission

# Key Terms

- **Code of Ethics** – a set of guidelines to help individuals make on-the-job ethical decisions
- **Computer Worm** – a software program designed to replicate itself after entering a computer system through a network or security hole
- **Encryption** – the process of scrambling or hiding information so that it cannot be understood without the key to change it back
- **Jailbreak** – making unauthorized changes to an iPod, iPhone, or iPad to get apps from a source other than the official iTunes App Store

# Key Terms (continued)

- **Keylogger** – a program that records a person's keystrokes, saves them, and then sends them to a system administrator or remote hacker
- **Malware** – programs such as viruses, worms, and bots designed to disrupt computer operations
- **Pharming** – an exploit that redirects users to fake websites
- **Phishing** – attempts to capture personal information by getting users to visit a fake website
- **Spam** – unsolicited email typically sent as a bulk or mass-mailing and often used for fraudulent or deceptive marketing

# Key Terms (continued)

- **Whistleblowing** – the disclosure by an employee of confidential information that relates to some danger, fraud, or other illegal or unethical conduct connected with the workplace
- **Zombie** – a computer that has been compromised by malware that allows it to be controlled by a remote user

# Computer Ethics

- **Ethics** – the principles of judging right and wrong
- Computer networks make it possible for anyone to access information using the Internet
  - Temptation to plagiarize or commit a cybercrime
- Understanding how to make ethical decisions aid in demonstrating positive cyber citizenry



# Ethical Decision Making

- This process include taking time to think about a situation before reacting
- Ask yourself how would you feel if your decision was made public
- Talk to individuals whose judgment you respect
  - Can help you evaluate options you might not consider
- Look at the problem from a different perspective
  - Will cause you to look at the situation as if you were the boss or client
- Access a student handbook or code of ethics to obtain answers to policies and guidelines



# Professional Organizations

- Professional organizations like the **Computer Ethics Institute (CEI)** can assist individuals in making ethical decisions
- Mission of the **CEI** is to provide advice concerning the ethical and social responsibilities of individuals, communities, organizations, and government
- For more information regarding the Computer Ethics Institute can be found at:
  - [www.computerethicsinstitute.org](http://www.computerethicsinstitute.org)
- The **Association for Computer Machinery** is another professional organization
  - The premier membership organization for computing professionals, delivering resources
  - [www.acm.org](http://www.acm.org)

# Plagiarism

- **Plagiarism** occurs when work created by someone else is used as your own
  - Violation occurs at times when students have waited until the last minute to complete assignments
- **Plagiarism** can be avoided by properly citing or quoting the work
  - If the information is common knowledge, such as the date of a major holiday, you do not need to cite it



# Whistleblowing

- **Whistleblowing** is the disclosure by an employee or professional of confidential information
  - Relates to some danger, fraud, or other illegal or unethical conduct
- **Whistleblowing** may seem effective, the consequences can be extreme
- Examine your motives; don't act out of frustration
- Try to correct the problem; follow the chain of command
- Collect evidence to back up your accusations
  - Do not break laws while collecting evidence

- Keep detailed notes as events arise
- Act ethically and do not violate any confidentiality agreements
- Be ready to accept repercussions
- Establish a support network
- Consider your strategy



# Computer Laws



# Computer Laws

- **Intellectual property** – can be categorized as copyrighted work, patented work, and/or trade secrets
- **Copyright** grants you, as the author of the work, the exclusive rights to :
  - Make copies of the work
  - Sale the work
  - And/or distribute it
- Laws have been established to protect intellectual property, personal privacy, and computer systems from fraud and abuse

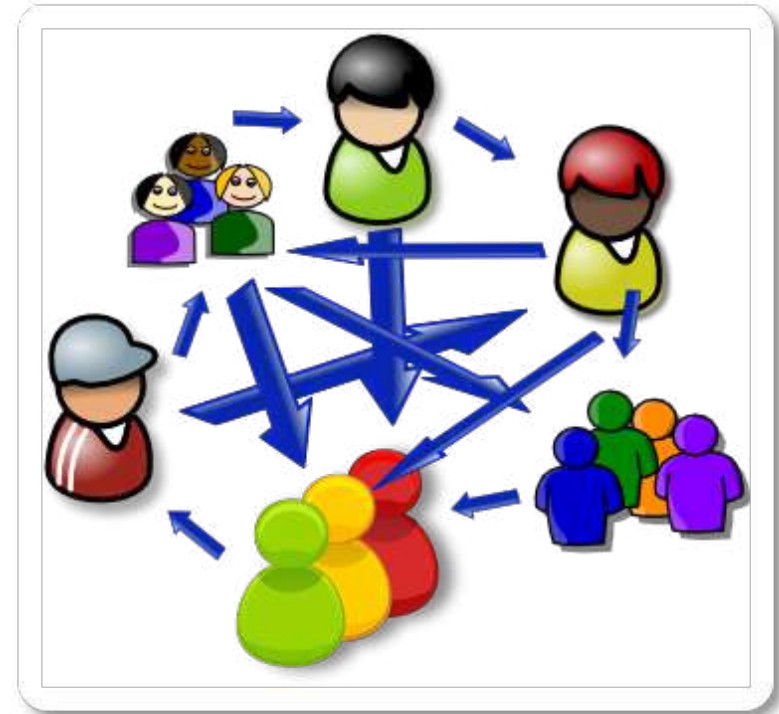
# Digital Millennium Copyright Act

- Originated in 1988
- This act makes it illegal to circumvent copy-protection technologies
  - Such as those to prevent unauthorized copyright of software CDs, music CDs, and DVD movies



# Children's Online Privacy Protection Act

- Originated in 1998
- This act regulates the types of data that can be collected and posted online with regard to children under the age of 13



# CAN-SPAM Act

- Originated in 2003
- This act establishes national standards for sending commercial email
  - Requires senders to use a valid subject line
  - Include the sender's legitimate physical address
  - Provide an op-out mechanism





# Communications Decency Act

- Enacted in 1996
- This act protects Internet Service Providers from liability for defamatory statements made by customers



# Electronic Communications Privacy Act

- Enacted in 1986
- This act extends telephone wiretap laws
- Restricts government agents and unauthorized third parties from tapping into data transmissions without a search warrant



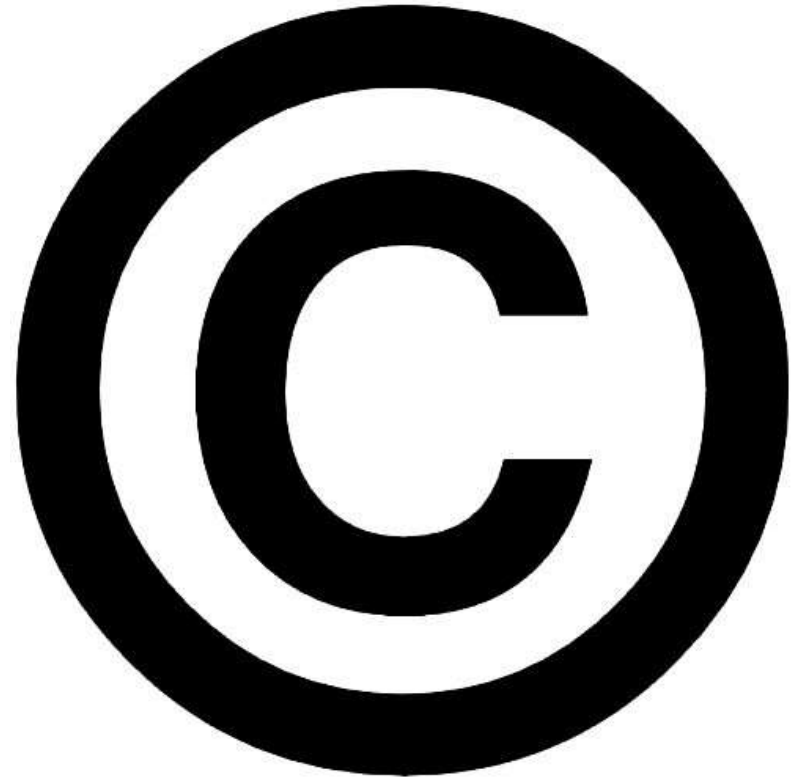
# Gramm-Leach-Bliley Act

- Enacted in 1999
- This act requires financial institutions to protect the confidentiality and security of customers' personal information



# United States Copyright Act

- Enacted in 1976
- This act extends copyright protection beyond print media to original works of authorship fixed in any tangible medium



**COPYRIGHT**

# USA PATRIOT Act

- Enacted in 2001
- This act enhances the authority of the law enforcement agents to preempt potential terrorist acts by various means without first obtaining a search warrant in situations where there is imminent danger



# Cyber Attacks and Cyber Security

- **Hackers** – breaks into a computer system legally to expose holes in computer systems
- Can also gain unauthorized access to computers illegal
- Some are hired to identify vulnerabilities
- Some intrusions occur due to **backdoors** left by programmers and administrator for their convenience
  - **Backdoors** provide shortcuts into programs created by system designers to expedite system maintenance
- **Crackers** – breaks into a computer illegally for personal gain
- **Dumpster diving** – used to obtain personal information and documents from individuals and businesses

# Cyber Attacks

- Security managers have divided the attacks into four categories:
  - Access
  - Modification
  - Denial of service
  - Repudiation



# Cyber Attacks

- **Access** – include snooping, eavesdropping, and interception
  - Can take place in the form of looking for information in a person's workspace
  - Tapping into a network using a sniffer
    - Sniffer – software program that allows the user to listen in on network traffic
- **Modification** – these attacks alter information illegally
  - Can occur on devices where the information resides
  - Or when information is in transit
  - Information is deleted, modified, or created
- **Denial-of-service (DOS)** prevent valid users from using resources
  - Can make information, applications, systems, and communication unavailable
- **Repudiation** attacks remove evidence that an event actually occurred





# Career Spotlight – Computer Forensics

- Individuals pursuing a career in **computer forensics** assist in the investigation of crimes by collecting and analyzing physical evidence
- Outlook is positive
  - Will increase through the year 2020 if not longer



# Safeguards

- Creation of an acceptable use policy
- Virtual private networks (VPN) – a setup in which a private connection is established within a larger network but is restricted to authorized users
- Biometrics – this process uses biological identification such as fingerprints, voice recognition, or retinal scans
- Disaster recovery plan – can be used to minimize any disruption a disaster might create
  - Should address data storage and recovery
  - Centralized and distributed systems recovery
  - End-user recovery
  - Network backup
  - Internal and external data
  - Voice communication restoration
  - Emergency management and decision making
  - Customer service restoration

# Assignment

- Peter is a 17 year old student who is scheduled to graduate in three months.
  - He decides to plan a party for his upcoming graduation and decides to download several of his favorite songs from iTunes.
  - He's so excited about the music he has purchased so he decides to burn the songs to a CD to share with his friends in advance so that they can practice on their dance moves for the party.
  - He wants to invite everyone in his senior class so he decides to create a flyer to share information about the party. He accessed the Internet to search the World Wide Web to find nice pictures to include on his flyer.
    - He finds several images from the Party Planners Website and decides to use the images to enhance the visual appeal of his flyer.
  - Peter is enrolled in Introduction to Digital Technology and learned how to create a website in the Web Design unit.
  - He decides to create a website to include a form to collect contact information from all of his friends in order to create a database.
  - Peter has been tutoring several 13-year old students and wants to invite them to his graduation party. He asks them to complete the survey to share their contact information.
  - It is now one week before final exams and Peter is required to compose a report on a topic covered in his Introduction to Digital Technology course.
    - He is exhausted from planning his graduation party and decides to copy and paste information from a website and book he checked out from the library.
- This assignment requires that you provide information on the computer laws and rules Peter has violated. Indicate the consequences Peter might encounter for violating the computer laws and rules. After you have done so, rewrite Peter's story to include details that would result in him applying proper computer ethics for each situation.