

Staying Secure

Textbook

Staying Secure



Why Are Security Updates So Important?

When a company discovers a weakness in their software, they often release a **security update** to fix it. These updates can stop hackers from getting into the system through those weak spots. That's why it's important to install updates right away—not next week or next month. Delaying can leave devices unprotected and open to attacks.

How Do Authentication and Authorization Work?

Authentication is how a system checks that you are who you say you are. **Authorization** decides what you're allowed to do after you're logged in. For example:

- Logging in with a password is a basic form of authentication.
- Being allowed to view a document but not edit it is authorization.

Some systems use **two-factor authentication (2FA)** or **multifactor authentication (MFA)**. These add extra protection by requiring something you *know* (like a password) and something you *have* (like a phone or fingerprint). **Biometric methods**, like fingerprint or face scans, are becoming more common and make

hacking even harder.

The CIA Triad: Confidentiality, Integrity, and Availability

The **CIA triad** is a simple way to understand the goals of cybersecurity:

- **Confidentiality:** Keeping information private and secure.
- **Integrity:** Making sure information isn't changed without permission.
- **Availability:** Ensuring information and systems are available when needed.

For example, an online gradebook should:

- Keep grades private (**confidentiality**),
- Make sure no one can change them without permission (**integrity**),
- Be working when teachers or students need it (**availability**).

The Social Engineering Attack Cycle

Social engineering is when someone tricks others into giving up private information. These attacks often follow a cycle:

1. **Research:** The attacker learns about the target (like what school they go to or what services they use).
2. **Hook:** The attacker reaches out, maybe pretending to be someone trustworthy.
3. **Play:** The attacker gains the person's trust and asks for information or action (like clicking a link or giving a password).
4. **Exit:** The attacker disappears, sometimes leaving no clues they were ever there.

Understanding this cycle helps us spot suspicious behavior and stay safe.

Critical Thinking Questions

1. Why do you think attackers often use social engineering instead of hacking computer code?
2. What could happen if someone delays a security update for a long time?

Questions (5)

1. What is the purpose of a security update?

MULTIPLE CHOICE

Choose the correct answer:

- A. To add new games to your device
- B. To fix spelling errors in software
- C. To patch security weaknesses
- D. To make the screen brighter

MULTIPLE CHOICE

2. What does multifactor authentication add to a login process?

Choose the correct answer:

- A. A new app for texting
- B. A second or third way to prove who you are
- C. A longer password
- D. A way to share passwords with others

MULTIPLE CHOICE

3. Which part of the CIA triad focuses on keeping information private?

Choose the correct answer:

- A. Availability
- B. Integrity
- C. Accessibility
- D. Confidentiality

MULTIPLE CHOICE

4. What is the final step in the social engineering attack cycle?

Choose the correct answer:

- A. Hoax
- B. Exit
- C. Play
- D. Research

MULTIPLE CHOICE

5. Which of these is a biometric authentication method?

Choose the correct answer:

- A. Password
- B. Phone number
- C. Face scan
- D. Username

Answer Keys & Solutions

Questions

1. What is the purpose of a security update?

MULTIPLE CHOICE

Correct Answer:

- A. To add new games to your device ✗ Incorrect
- B. To fix spelling errors in software ✗ Incorrect
- C. To patch security weaknesses ✓ Correct
- D. To make the screen brighter ✗ Incorrect

2. What does multifactor authentication add to a login process?

MULTIPLE CHOICE

Correct Answer:

- A. A new app for texting ✗ Incorrect
- B. A second or third way to prove who you are ✓ Correct
- C. A longer password ✗ Incorrect
- D. A way to share passwords with others ✗ Incorrect

3. Which part of the CIA triad focuses on keeping information private?

MULTIPLE CHOICE

Correct Answer:

- A. Availability ✗ Incorrect
- B. Integrity ✗ Incorrect
- C. Accessibility ✗ Incorrect
- D. Confidentiality ✓ Correct

4. What is the final step in the social engineering attack cycle?

Correct Answer:

- A. Hoax ✗ Incorrect
- B. Exit ✓ Correct
- C. Play ✗ Incorrect
- D. Research ✗ Incorrect

5. Which of these is a biometric authentication method?

Correct Answer:

- A. Password ✗ Incorrect
- B. Phone number ✗ Incorrect
- C. Face scan ✓ Correct
- D. Username ✗ Incorrect