

EXERCISE 2

SECURITY PRINCIPLES

AIM:

To understand the Security Triad (Confidentiality, Integrity, Availability) and explore common security models and principles that help in designing and maintaining secure systems

Learn > Security Principles

Security Principles

Learn about the security triad and common security models and principles.

Easy 90 min

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Task 1 Introduction

Security has become a buzzword; every company wants to claim its product or service is secure. But is it?

Before we start discussing the different security principles, it is vital to know the adversary against whom we are protecting our assets. Are you trying to stop a toddler from accessing your laptop? Or are you trying to protect a laptop that contains technical designs worth millions of dollars? Using the exact protection mechanisms against toddlers and industrial espionage actors would be ludicrous. Consequently, knowing our adversary is a must so we can learn about their attacks and start implementing appropriate security controls.

Protecting confidentiality and integrity to an extreme can restrict availability, and increasing availability to an extreme can result in losing confidentiality and integrity. Good security principles implementation requires a balance between the three.

Answer the questions below

The attacker managed to gain access to customer records and dumped them online. What is this attack?

Disclosure

✓ Correct Answer

A group of attackers were able to locate both the main and the backup power supply systems and switch them off. As a result, the whole network was shut down. What is this attack?

Destruction/Denial

✓ Correct Answer

Task 4 ✓ Fundamental Concepts of Security Models



Task 5 ✓ Defence-in-Depth



Task 6 ✓ ISO/IEC 19249



Task 7 ✓ Zero Trust versus Trust but Verify



Answer the questions below

Click on "View Site" and answer the four questions. What is the flag that you obtained at the end?

THM[SECURITY_MODELS]

✓ Correct Answer

Task 5 ✓ Defence-in-Depth



Task 6 ✓ ISO/IEC 19249



Task 7 ✓ Zero Trust versus Trust but Verify



Task 8 ✓ Threat versus Risk



Task 9 ✓ Conclusion



Answer the questions below

Which principle are you applying when you turn off an insecure server that is not critical to the business?

2

✓ Correct Answer

Your company hired a new sales representative. Which principle are they applying when they tell you to give them access only to the company products and prices?

1

✓ Correct Answer

While reading the code of an ATM, you noticed a huge chunk of code to handle unexpected situations such as network disconnection and power failure. Which principle are they applying?

5

✓ Correct Answer

Task 7 ✓ Zero Trust versus Trust but Verify



Task 8 ✓ Threat versus Risk



RESULT:

Successfully gained knowledge of the Security Triad, various security models (such as Bell-LaPadula, Biba, and Clark-Wilson), and fundamental security principles to enhance system protection and risk management.