

### **Assignment 1: Vulnerability Analysis**

1. Research and identify three recent vulnerabilities in popular operating systems (e.g., Windows, Linux, macOS).
2. For each vulnerability, describe:
  - The nature of the vulnerability.
  - The potential impact on the system.
  - Recommended mitigation strategies.
3. Write a 500-word report summarizing your findings.

### **Assignment 2: Security Measures Implementation**

1. Choose an operating system (e.g., Windows, Linux, or macOS) and create a step-by-step guide to harden its security.
2. Include the following in your guide:
  - Disabling unnecessary services.
  - Configuring firewalls and network settings.
  - Enabling encryption and strong authentication.
  - Setting up logging and monitoring.
3. Test your guide on a virtual machine and document the results.

### **Assignment 3: Case Study on OS Security Breach**

1. Research a real-world case study of an operating system security breach (e.g., WannaCry ransomware, SolarWinds attack).
2. Analyze the following:
  - The vulnerability or threat exploited.
  - The impact on the affected organization(s).
  - The security measures that could have prevented the breach.
3. Prepare a 10-minute presentation summarizing your analysis and recommendations.