# Module 7

## Assignment : Password Hacking and Cracking

**Project Title: Password Security and Cracking Assessment**

**Project Description:**

In this project, students will explore the world of password security and cracking by conducting a comprehensive assessment of password practices and vulnerabilities. They will also utilize Metasploit to create and test payloads, emphasizing the importance of strong password protection and secure practices.

**Project Components:**

**Password Security Assessment:**

Select a target environment (e.g., a small network, a virtual lab) to assess password security practices.
Document password policies, password storage methods, and user practices.

**Understanding Password Hashes:**

Review the concept of password hashing and its importance in securing passwords.
Explain the differences between hashing algorithms, including MD5 and SHA-256.

**Hands-On Hash Analysis:**

Analyze password hashes from the target environment using John the Ripper.
Document findings, including weak hashes and their corresponding passwords if cracked.

**Password Cracking Techniques:**

Explore various password cracking techniques, such as dictionary attacks, brute force attacks, and rainbow tables.

Discuss the advantages and limitations of each technique.

**Cracking Passwords with Tools:**

Use John the Ripper to perform dictionary attacks and brute force attacks on password hashes.
Demonstrate the process of cracking passwords and recovering plaintext passwords.

**Metasploit Payloads:**

Create and customizing payloads for various scenarios.

**Payload Testing:**

Use Metasploit to deploy payloads in a controlled environment (e.g., virtual machines) for testing.
Discuss the potential consequences of successful payload execution.

**Recommendations and Mitigations:**

Provide recommendations for strengthening password security, including password policies and best practices.
Emphasize the importance of using strong, unique passwords and implementing multi-factor authentication.

**Reporting:**

Create a detailed report summarizing the password security assessment, cracking results, and recommendations for improvement.

**Presentation:**

Present the findings and recommendations to the class or instructor.
Discuss the implications of weak password security and the role of ethical hacking in improving security practices.

**Project Benefits**:

- Offers practical experience in assessing and cracking passwords within a controlled environment.

- Reinforces knowledge of password hashing, password security, and password cracking techniques.
- Emphasizes the importance of strong password policies and security best practices.
- Introduces students to Metasploit and payload creation for educational purposes.
- This project allows students to explore password security, practice password cracking techniques responsibly, and gain valuable insights into password protection and security practices. It also emphasizes the ethical and responsible use of hacking tools for educational purposes.