**Abstract:** In the modern digital era, cybersecurity has become a fundamental necessity as cyber threats continue to evolve, targeting individuals, businesses, and governments. This project explores key cybersecurity threats, including malware, phishing, ransomware, denial-of-service (DoS) attacks, SQL injection, and zero-day exploits. These threats pose significant risks, leading to data breaches, financial loss, and reputational damage.

**Scope of the Project :**

Identification of Cyber Threats – Examining various cybersecurity threats such as malware, phishing, ransomware, DDoS attacks, SQL injection, and insider threats.

Cybersecurity Defense Mechanisms – Evaluating traditional and modern security measures, including firewalls, IDS/IPS, encryption techniques, and multi-factor authentication.

Advanced Security Solutions – Exploring emerging technologies such as AI-driven threat detection, machine learning for anomaly detection, and blockchain for secure transactions.

**Objectives of the Project :**

**1. Identify Cyber Threats**

Analyze various cyber risks, attack methods, and their impact, including:

Malware Attacks – Understanding viruses, worms, trojans, spyware, and ransomware and their impact on systems.

**2. Explore Security Solutions**

Investigate and implement security measures to prevent cyber threats, such as:

Encryption Techniques – Understanding how AES, RSA, and ECC encryption protect sensitive data.

**3. Promote Cyber Awareness**

Educate individuals and organizations on best cybersecurity practices, including:

Safe Browsing & Email Security – Teaching how to detect phishing emails and avoid malicious websites.

**4. Assess Emerging Technologies in Cybersecurity**

Examine how new technologies are shaping cybersecurity solutions, including:

Artificial Intelligence & Machine Learning – Using AI for threat detection, anomaly detection, and automated response systems.

**5. Conduct Hands-On Ethical Hacking & Penetration Testing**

Perform practical demonstrations of security vulnerabilities and ethical hacking techniques:

Using Kali Linux & Metasploit – Conduct penetration tests on vulnerable applications**.**