

# Research & Documentation

## 1. What is cybersecurity, and why is it important?

Cybersecurity involves practices and technologies to protect systems, networks, and data from cyberattacks.

### ***Importance:***

- Prevents financial losses from data breaches or ransomware.
- Protects personal and organizational data from theft.

## 2. Five real-world cyberattacks and how they happened.

- ***WannaCry Ransomware Attack (17):*** Exploited vulnerabilities; asked for ransom demand
- ***QR Code Phishing (24):*** Fake QR codes; redirected to scams
- ***Salt Typhoon Breaches (24):*** Phishing emails; accessed government data
- ***Synnovis Ransomware Attack (24):*** Encrypted files; ransom demanded for decryption.
- ***Yahoo Data Breach (13-14):*** Weak encryption; 3B affected

## 3. Difference between HTTP and HTTPS.

- ***HTTP (Hypertext Transfer Protocol):*** Unsecured, transmits data in plaintext, susceptible to interception.
- ***HTTPS (HTTP Secure):*** Secured with SSL/TLS encryption, ensures data confidentiality and authenticity.

## 4. Explanation of AES and RSA encryption with simple examples.

### ***AES (Advanced Encryption Standard):***

- Symmetric encryption (same key for encryption and decryption).
- Ex: Encrypting "HELLO" with key 123 produces unreadable text.

### ***RSA (Rivest-Shamir-Adleman):***

- Asymmetric encryption (uses public and private keys).
- Example: Public key encrypts "HELLO", only the private key decrypts it back to the original.