Research & Documentation

❖ **Cybersecurity: What and Why?**

Cybersecurity protects systems, networks, and data from cyber threats like hacking, breaches, and ransomware.
Importance:

- **Data Security**: Safeguards sensitive info.

- **Economic Protection**: Prevents financial losses.

- **Continuity**: Ensures services remain operational.

- **Trust**: Builds user confidence.

❖ **5 Real-World Cyberattacks**

1. **WannaCry (2017)**: Ransomware exploiting outdated Windows via EternalBlue.

2. **Target Breach (2013)**: Hackers used a vendor's stolen credentials, exposing millions.

3. **SolarWinds (2020)**: Malware hidden in updates compromised global networks.

4. **Yahoo (2013-2014)**: 3 billion accounts breached due to weak security.

5. **Colonial Pipeline (2021)**: Ransomware shut down U.S. fuel distribution.

❖ **HTTP vs. HTTPS**

- **HTTP**: Transfers data in plain text; vulnerable to interception.

- **HTTPS**: Secures data using encryption (SSL/TLS), protecting privacy.

❖ **AES vs. RSA Encryption**

1. **AES** (Symmetric): Same key for encryption/decryption. Example: HELLO → X9K8Z → HELLO.

2. **RSA** (Asymmetric): Public key encrypts; private key decrypts. Example: HELLO → Encrypted Data → HELLO.