



School: Campus:

Academic Year: Subject Name: Subject Code:

Semester: Program: Branch: Specialization:

Date:

Applied and Action Learning

(Learning by Doing and Discovery)

Name of the Experiment : Security First – Understanding Blockchain Attacks

Objective/Aim:

To study different types of blockchain attacks and understand how blockchain ensures security against them.

Apparatus/Software Used:

- Ms word
- Brave for searching
- <https://www.ibm.com/think/topics/blockchain-security>

Theory concept:

Blockchain provides security through **decentralization, cryptography, and consensus mechanisms**. However, some attacks can still target the network.

Common Blockchain Attacks

1. 51% Attack:

When a miner or group controls more than 50% of the network's hash power and can manipulate transactions.

2. Double Spending Attack:

Sending the same cryptocurrency to two people by exploiting confirmation delays.

3. Sybil Attack:

Creating many fake nodes to influence the network or flood it with false data.

4. DDoS Attack:

Overloading blockchain nodes with excessive traffic to disrupt service.

5. Smart Contract Vulnerabilities:

Coding errors (like reentrancy bugs) can be exploited to drain funds or lock assets.

Blockchain systems use **consensus protocols, encryption, and audits** to prevent or minimize these attacks.

Procedure:

- Set up a blockchain simulation or read about test network attacks.
- Identify the main types of attacks (51%, Sybil, Double Spending, etc.).
- Study how each attack works and what part of the system it targets.
- Observe how consensus and cryptography help prevent such attacks.
- Note the security measures that strengthen blockchain networks.

Observation:

- Networks with fewer nodes are more vulnerable to attacks.
- Consensus algorithms like **Proof of Work** and **Proof of Stake** reduce the risk.
- Attack success depends on computing power, network design, and user awareness.

ASSESSMENT

Rubrics	Full Mark	Marks Obtained	Remarks
Concept	10		
Planning and Execution/ Practical Simulation/ Programming	10		
Result and Interpretation	10		
Record of Applied and Action Learning	10		
Viva	10		
Total	50		

Signature of the Student:

Name :

Signature of the Faculty:

Regn. No. :

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*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.