



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		
<b>Total</b>	<b>50</b>		

**Signature of the Student:**

Name :

Regn. No. :

Page No. ....

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

**Signature of the Faculty:**