School: .... Campus: ....

Academic Year: .... Subject Name: .... Subject Code: ....

Semester: .... Program: .... Branch: .... Specialization: ....

Date: ....

Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

Applied and Action Learning
(Learning by Doing and Discovery)

Name of the Experiement : 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:

- VS code
- Brave for searching
- MetaMask wallet

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. :

Page No............

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