



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 : Build a Use Case - Tokenized Supply Chain Prototype

Coding Phase: Pseudo Code / Flow Chart / Algorithm

1. Start
2. Select a blockchain platform (e.g., Stacks or Ethereum Testnet).
3. Open the smart contract development environment (Clarity or Remix).
4. Write a smart contract to represent products as tokens.
5. Define functions to create (mint), transfer, and track tokens.
6. Deploy the contract on the testnet..
7. Verify the transactions on the blockchain explorer.
8. End

Apparatus/Software Used:

1. Computer System / Laptop
2. Web Browser (Google Chrome / Firefox)
3. Blockchain Testnet (e.g., Stacks Testnet, Ethereum Sepolia Testnet)
4. Smart Contract IDE (e.g., Clarity for Clarity or Remix IDE for Solidity)
5. Wallet (e.g., Hiro Wallet, MetaMask)

Theory/Concept:

A tokenized supply chain converts physical goods or products into digital tokens on a blockchain.

Each token represents a product unit and can record important data such as origin, manufacturer, location, and ownership.

- Transparency in product movement
- Fraud prevention and authenticity verification
- Real-time tracking of goods
- Reduced paperwork and intermediaries

Procedure :

- 1, Open Clarinet IDE or Remix IDE for smart contract development.
2. Write a smart contract that defines:
 - Product token structure
 - Functions to mint and transfer tokens
 - Events for logging ownership changes
3. Connect the wallet (Hiro or MetaMask) and switch to the testnet network.
4. Deploy the contract on the blockchain testnet.
5. Mint tokens to represent product batches (e.g., “Product A - Batch #001”).
6. Transfer tokens through different supply chain participants (Manufacturer → Distributor → Retailer → Customer).
7. Verify each transaction on the blockchain explorer.
8. Record the transaction details for observation.

Observation table:

Action	On-chain Data	Status / Result	Remarks
Create Product Token	tokenId, batchCode, metadataURI, default status	✓ Product token created	Metadata stored on IPFS for reference
Dispatch to Distributor	Transfer log + ownership record	✓ Token ownership updated	Ledger records sender, receiver & time
Update Shipment Status — In Transit	statusHistory[tokenId] entry added	✓ Shipment status updated	Entry includes transport details
Deliver to Retailer	Transfer log + statusHistory	✓ Ownership transferred successfully	Blockchain record verified and consistent

ASSESSMENT

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

Signature of the Student:

Name :

Regn. No.

Signature of the Faculty: