Centurion University
Shaping Lives... Empowering Communities...

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 Experiement :

* Coding Phase: Pseudo Code / Flow Chart / Algorithm

Pseudo Code:

```
START Token Creation
IMPORT ERC20 standards from OpenZeppelin
DEFINE contract MyToken inheriting from ERC20
CONSTRUCTOR(initialSupply):
    SET token name: "MyToken"
    SET token symbol: "MTK"
    MINT initialSupply to contract deployer
END CONSTRUCTOR
END CONTRACT
```

Algorithm:

1. Import necessary ERC20 template
2. Initialize token with name and symbol
3. Mint initial supply to deployer
4. Deploy to blockchain network
5. Verify deployment and functions

Flow Chart:

[Start] → [Import OpenZeppelin ERC20] → [Create MyToken Contract]
→ [Define Constructor] → [Set Name/Symbol] → [Mint Tokens]
→ [Deploy to Network] → [Test Functions] → [End]

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

Coding Phase: Pseudo Code / Flow Chart / Algorithm

* Softwares used

- Remix IDE: Online Solidity development environment
- MetaMask: Crypto wallet for network interaction
- OpenZeppelin: Library for secure smart contract templates
- Sepolia Testnet: Ethereum test network for deployment
- Web Browser: Brave browser for accessing Remix

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

* Testing Phase: Compilation of Code (error detection)

Code Testing Steps:

solidity
Test 1: Compilation Check
No syntax errors
OpenZeppelin imports correctly

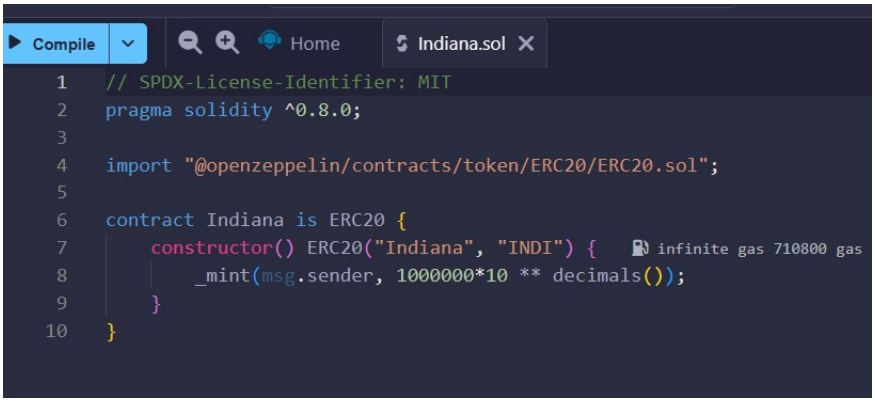
Test 2: Contract Deployment
Constructor accepts initialSupply parameter
Token deploys successfully to Remix VM

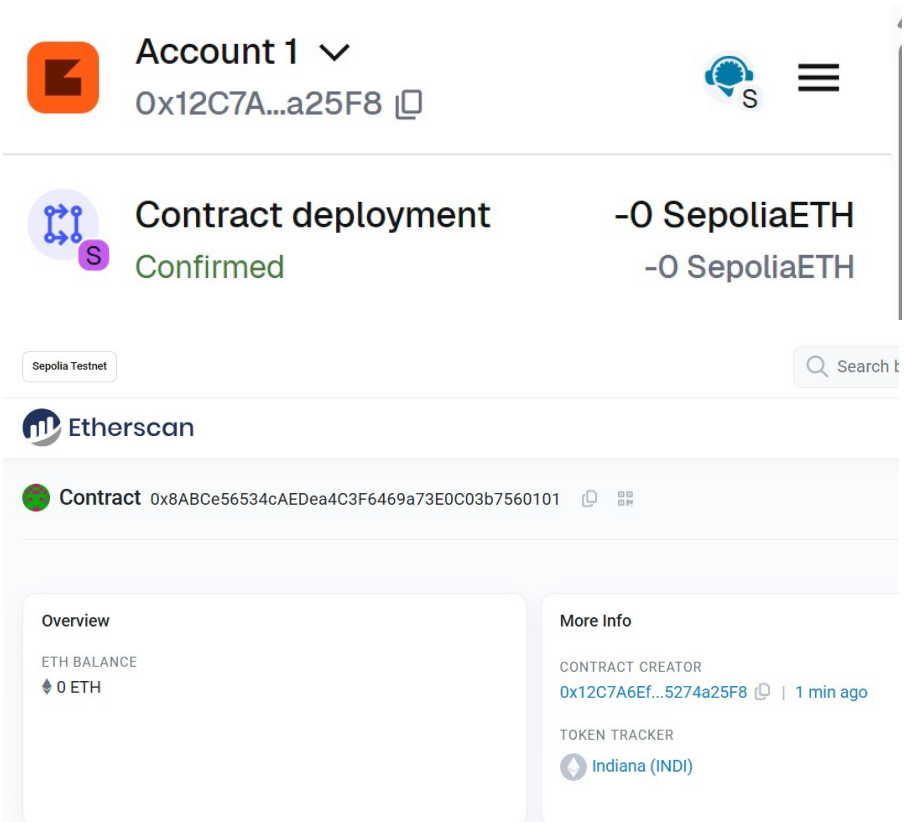
Test 3: Function Testing
name() returns "MyToken"
symbol() returns "MTK"
balanceOf() shows correct initial supply
decimals() returns 18 (standard)

Errors Detected & Fixed:

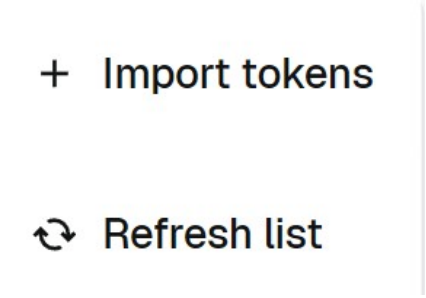
1. Compiler Version Mismatch - Fixed by matching pragma version
2. Import Path Errors - Corrected OpenZeppelin import syntax
3. Constructor Parameters - Ensured initialSupply is passed correctly
4. Network Connection - Resolved MetaMask-Sepolia connection issues

* Implementation Phase: Final Output (no error)



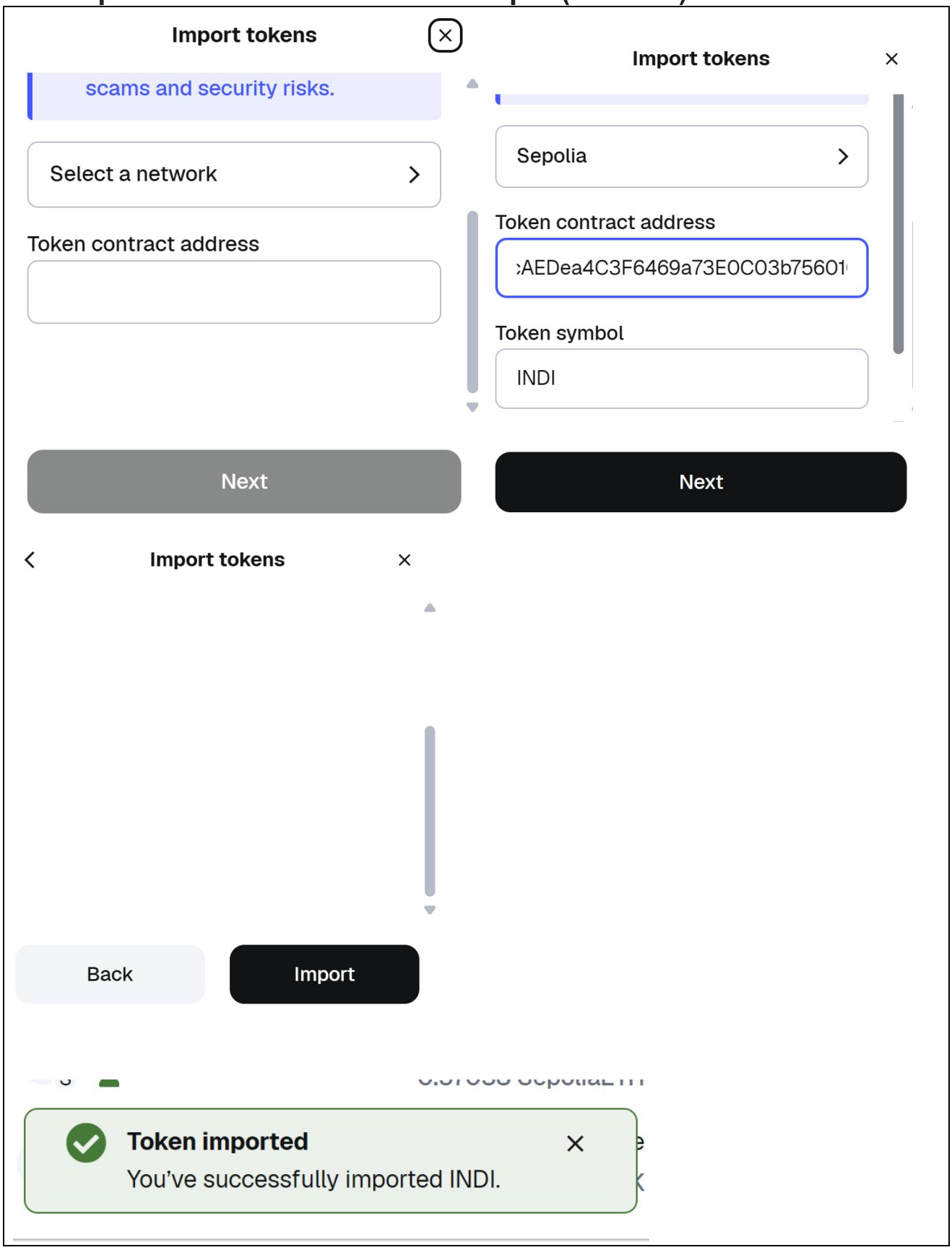


The deployed Token is added to the MetaMask:



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

Implementation Phase: Final Output (no error)

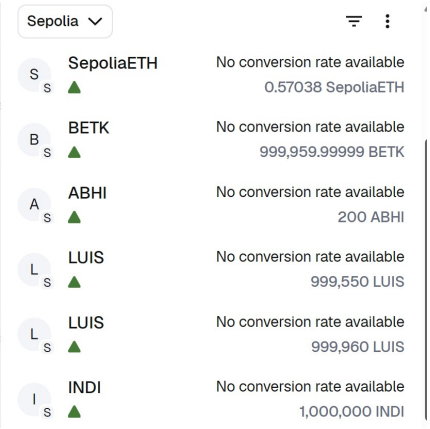


*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.

* Implementation Phase: Final Output (no error)

CONTRACT DEPLOYED SUCCESSFULLY

- Contract Address: 0x8ABC...60101
- Network: Sepolia Testnet
- Token Name: Indiana
- Token Symbol: INDI
- Initial Supply: 100 INDI
- Status: VERIFIED - No Errors



* Observations

Technical Observations:

- Gas Efficiency: ERC20 standard optimized gas usage
- Security: OpenZeppelin implementation prevents common vulnerabilities
- Interoperability: Standard ERC20 functions work with all wallets/exchanges
- Scalability: Contract can handle large number of token transfers

User Experience Observations:

- Remix IDE: Easy for beginners, instant compilation feedback
- MetaMask Integration: Smooth for testnet deployments
- Sepolia Network: Reliable testnet with good transaction speed
- Cost: Zero real money spent (test ETH only)

ASSESMENT

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 :

Regn. No. :

Signature of the Faculty:

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