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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

Algorithm:

1. Open **Remix IDE**.
2. Create a new **Solidity (.sol)** file.
3. Write the **ERC-20 token smart contract** code.
4. Compile the contract.
5. Choose **Injected Provider – MetaMask** as the deployment environment.
6. Deploy the contract through **MetaMask**.
7. Approve and confirm the transaction in MetaMask.
8. Copy the **deployed contract address**.
9. Check and explore your token on **Etherscan**.
10. Add the token to **MetaMask** using its contract address.
11. In Remix, open the contract under **Deployed Contracts**.
12. Use the **transfer function** to send tokens to another wallet.

* Softwares used

1.Remix IDE
2.MetaMask
3.Etherscan
4.OpenZeppelin Contracts
5.Brave Web Browser

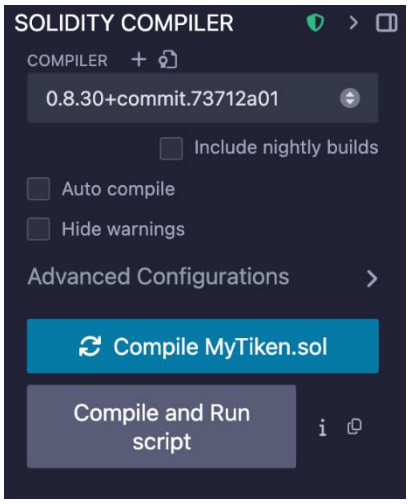
*As applicable according to the experiment.
Two sheets per experiment (10-20) to be used.

* Testing Phase: Compilation of Code (error detection)

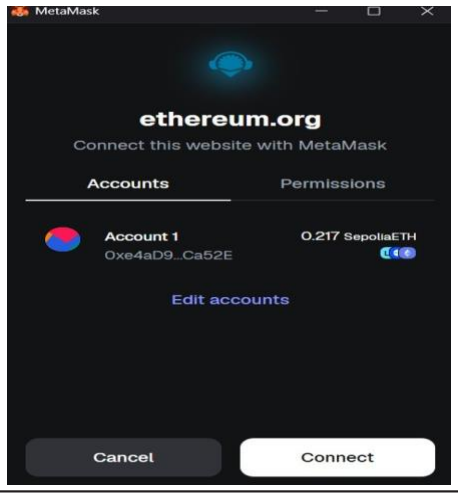
Open your browser and go to https://remix.ethereum.org.This is where you'll write, compile, and deploy your smart contract. In the left panel, click on the "contracts" folder.
Click the "+" icon to·create a new file (e.g., tobi.sol) Write the ERC-20 Token Code

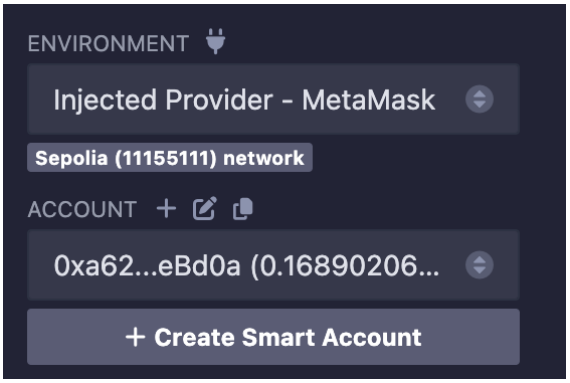
```
// SPDX-License-Identifier: MIT
pragma solidity ^0.8.20;

import "@openzeppelin/contracts/token/ERC20/ERC20.sol";

contract PritToken is ERC20 {
    constructor(string memory name, string memory symbol) ERC20(name, symbol) {    infinite gas 710800 gas
        _mint(msg.sender, 1000000 * 10 ** decimals());
    }
}
```

This code creates an ERC-20 token with customizable name and symbol.It also mints 1 million tokens to the deployer's wallet.
Compile the Contract Go to the "Solidity Compiler" tab on the left.Select compiler version 0.8.20.Click the "Compile tobi.sol" button.Ensure no errors are shown in the console.



Go to "Deploy & Run Transactions" in Remix.Select "Injected Provider - MetaMask" as the environment.Approve the connection to Remix from MetaMask.





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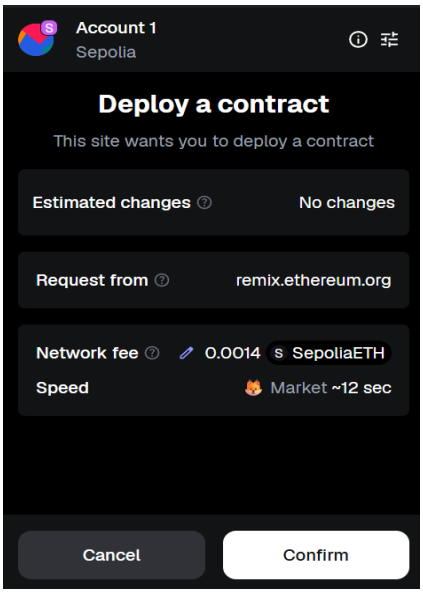
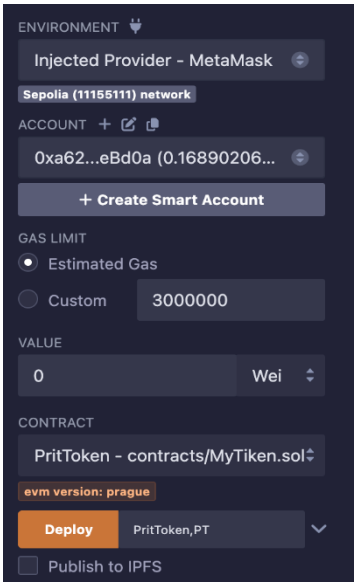
Two sheets per experiment (10-20) to be used.

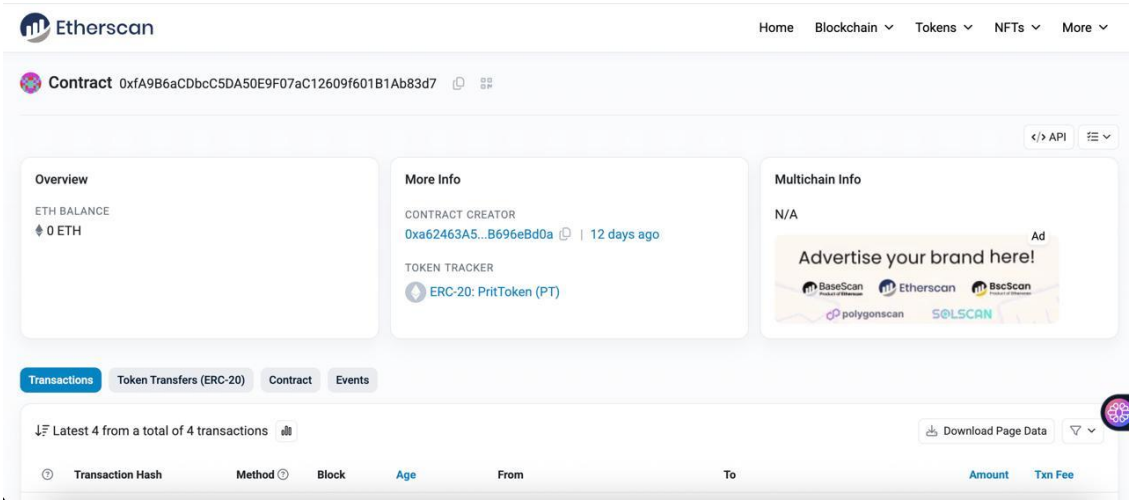
* Testing Phase: Compilation of Code (error detection)

Deploy the Contract ,Enter the name and symbol for your token in the constructor parameters (e.g., "TobiCoin", "TOB").Click "Deploy".MetaMask will pop up – approve the transaction.





Explore Contract on Etherscan ,Go to https://etherscan.io or the testnet version (e.g., sepolia.etherscan.io).Paste your contract address into the search bar.View details like token name, total supply, transactions, and contract code.



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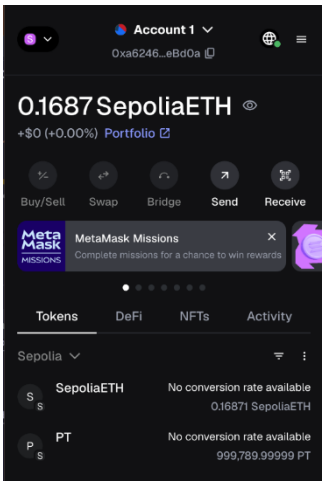
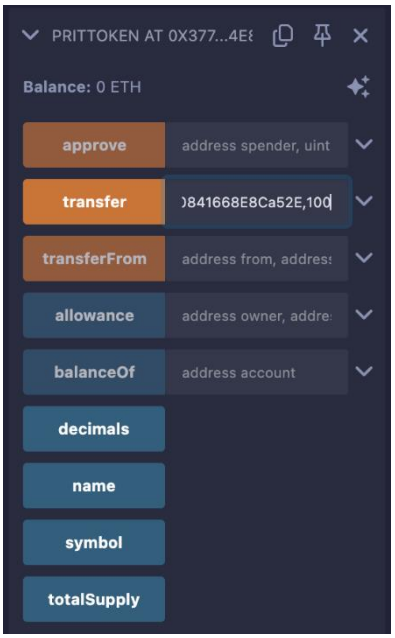
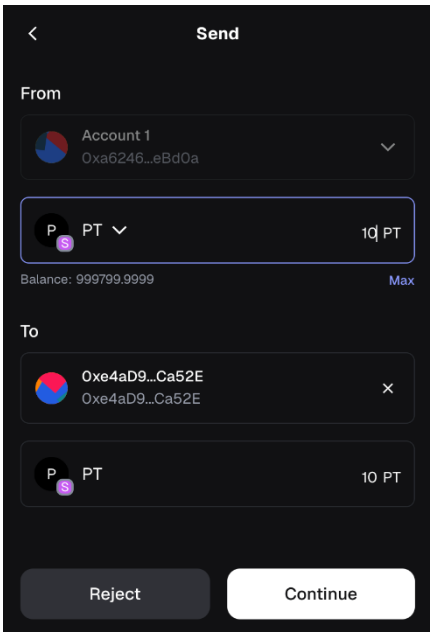
* Testing Phase: Compilation of Code (error detection)

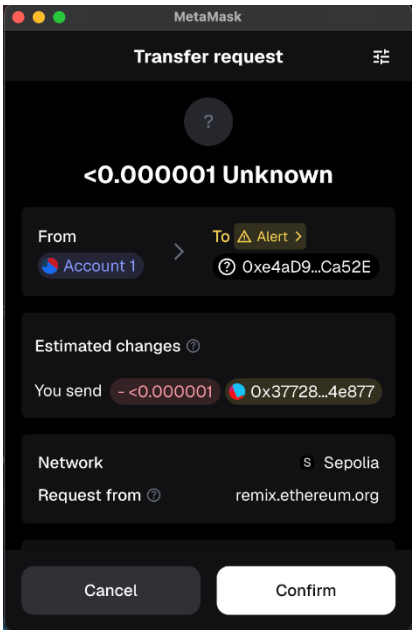
Add Token to MetaMask.Open MetaMask → Click on "Import Tokens".Paste the contract address.MetaMask will auto-fill token symbol and decimals.Click "Add Custom Token" → "Import Tokens".You will now see your token balance (1,000,000 TOB) in MetaMask.

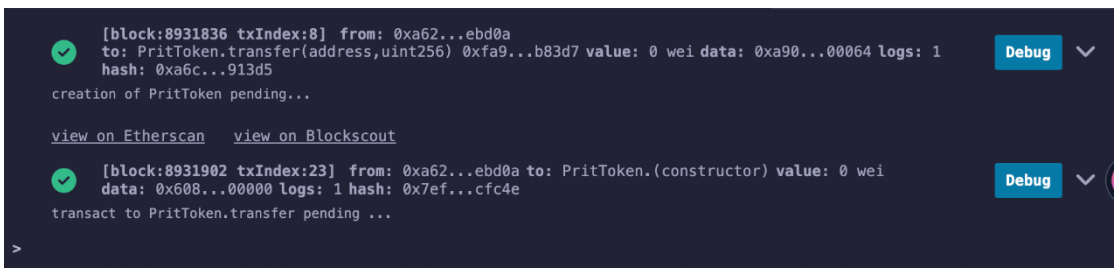


Transfer Tokens to Another Wallet ,In Remix, expand your deployed contract in "Deployed Contracts".Find the transfer function.









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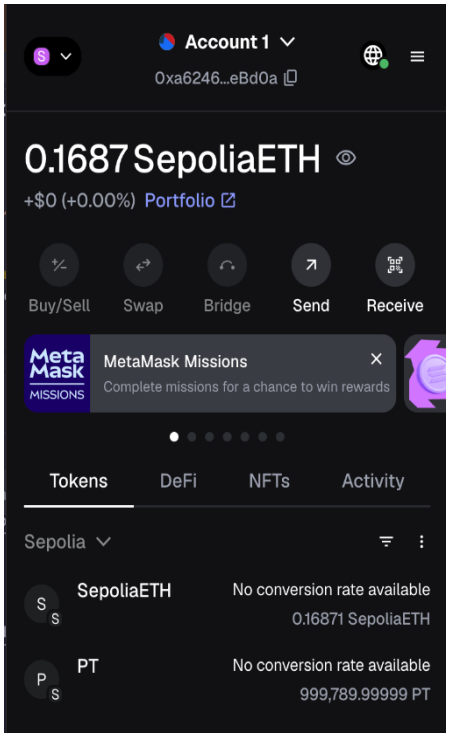
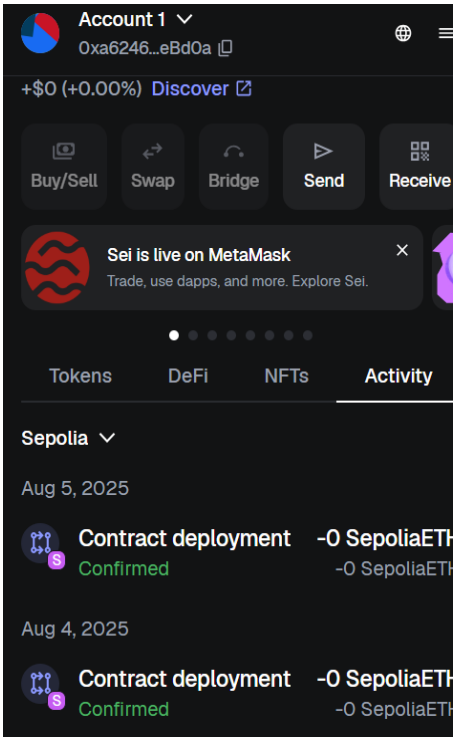
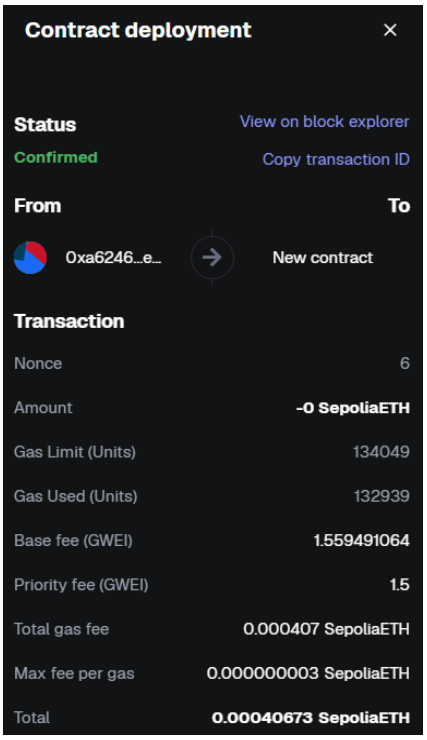
* Implementation Phase: Final Output (no error)







* Observations

1. The ERC-20 token contract was successfully compiled and deployed using Remix and MetaMask.
2. The token appeared in MetaMask after importing the contract address, confirming successful minting.
3. Token transfer to another wallet was executed and verified on Etherscan, confirming proper contract functionality.

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 :

Regn. No. :

Signature of the Faculty:

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