DOP: / /2023 DOS: / / 2023

Experiment No: 04

Aim: To design and develop cryptocurrency using MetaMask and Remix..

Theory:

Cryptocurrency:

A cryptocurrency is a digital or virtual currency that uses cryptography to secure and verify transactions and to control the creation of new units. Cryptocurrencies are decentralized and operate independently of any central authority, such as a government or a financial institution. Instead, they rely on a distributed ledger technology, such as the blockchain, to maintain a secure and transparent record of all transactions. Cryptocurrencies are often used as a means of payment or as a store of value, and they can be exchanged for other currencies or used to purchase goods and services. Some of the most popular cryptocurrencies include Bitcoin, Ethereum, and Litecoin. The rise of cryptocurrencies has led to a new era of digital finance, with the potential to revolutionize the way we conduct transactions, store value, and interact with the financial system. However, the use of cryptocurrencies also poses various challenges and risks, such as volatility, regulatory uncertainty, and security concerns.

Remix IDE:

Remix IDE is a web-based Integrated Development Environment (IDE) that is used to write, compile, and deploy smart contracts on the Ethereum blockchain. It provides a user-friendly interface and a set of powerful tools to develop, test, and debug Solidity code. Remix IDE supports different versions of Solidity, and it includes features like code highlighting, auto-completion, and debugging tools. It also allows users to connect to different blockchain networks and to deploy smart contracts directly from the IDE. Remix IDE is a popular choice for developers who are new to blockchain development, as well as for experienced developers who are looking for an efficient and convenient way to write and test their smart contracts.

Metamask:

Metamask is a popular cryptocurrency wallet and browser extension that allows users to interact with the Ethereum blockchain. It is a non-custodial wallet, which means that users have full control over their private keys and funds. Metamask provides a user-friendly interface for managing Ethereum accounts, sending and receiving Ether and ERC20 tokens, and interacting with decentralized applications (dApps) and smart contracts. It also supports multiple

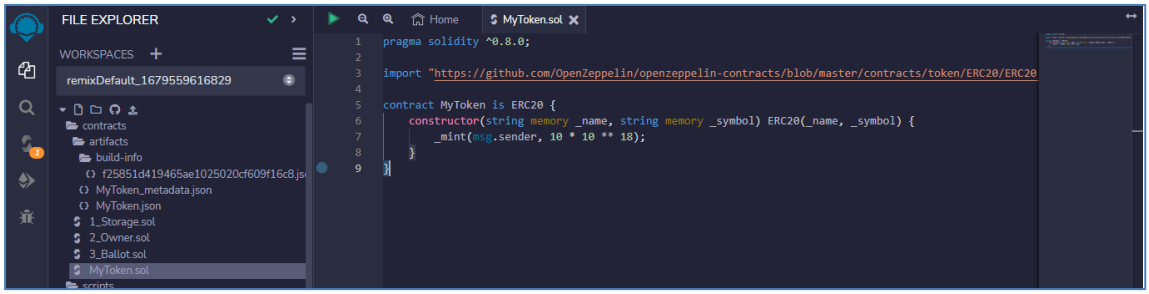
Ethereum networks, including the Ethereum mainnet, testnets, and custom networks. Metamask is widely used by developers, traders, and enthusiasts in the Ethereum ecosystem, and it is often used in conjunction with other tools like Remix IDE to create and test smart contracts.

Steps:

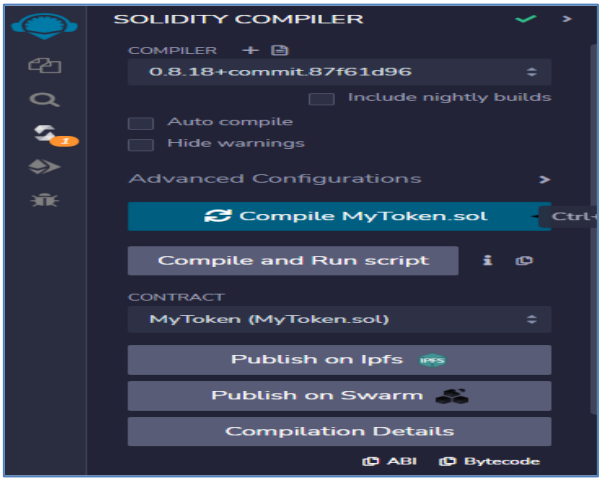
1. Install Metamask extension in your web browser and create a new Ethereum account. Make sure to save your seed phrase somewhere safe.

2. Open Remix IDE in your web browser and create a new Solidity file.

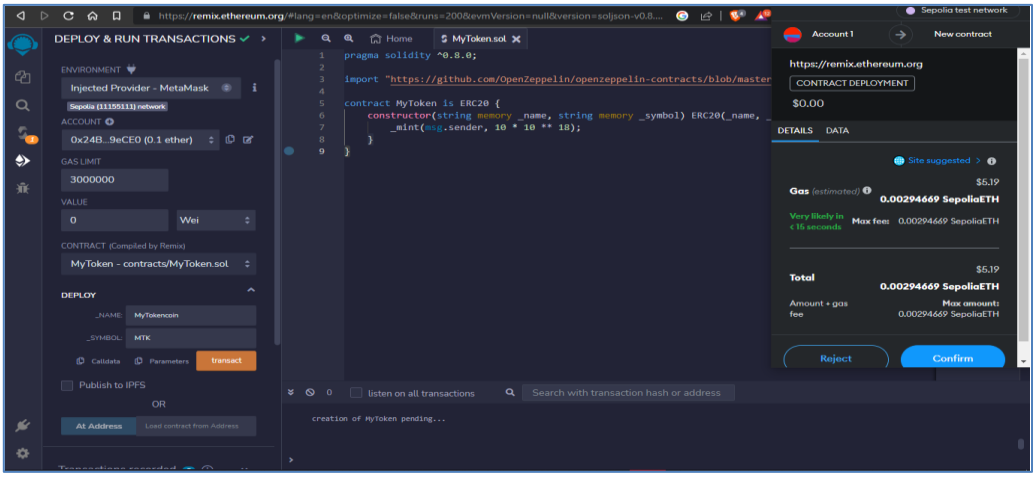
3. Define the basic structure of your cryptocurrency smart contract. Here's a sample code:



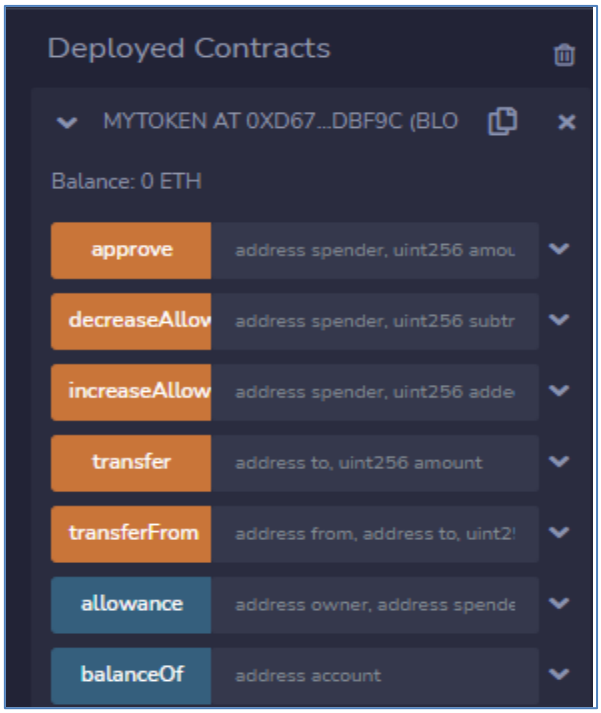
4. Compile the contract by clicking “Compile MyToken.sol”



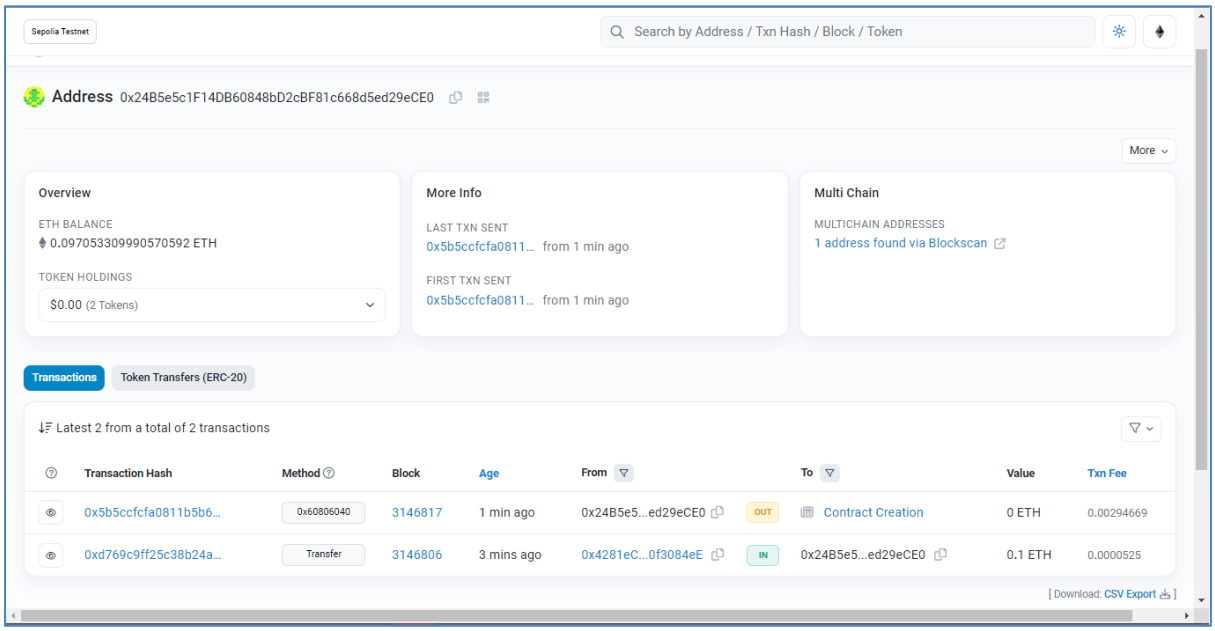
5. Debug the contract and select environment to “Injected Provider – Metamask” type the name and symbol for the.

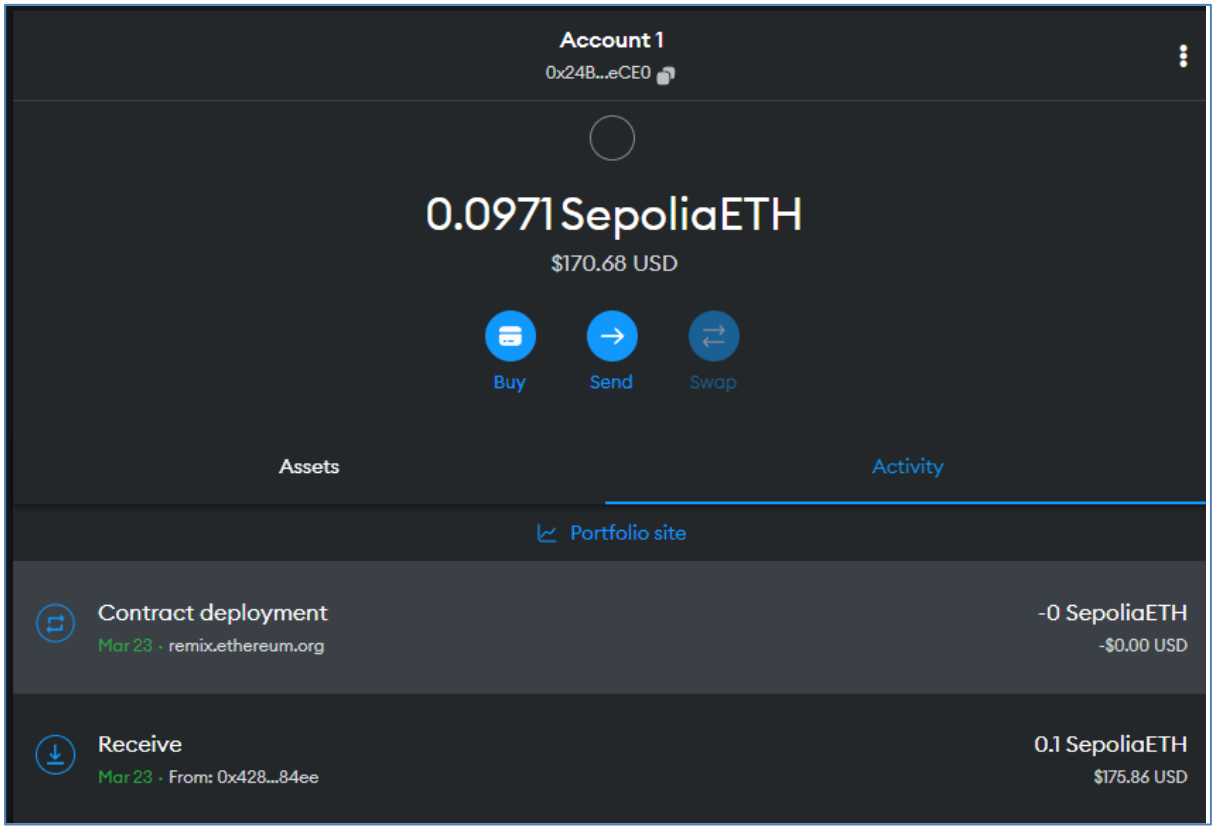


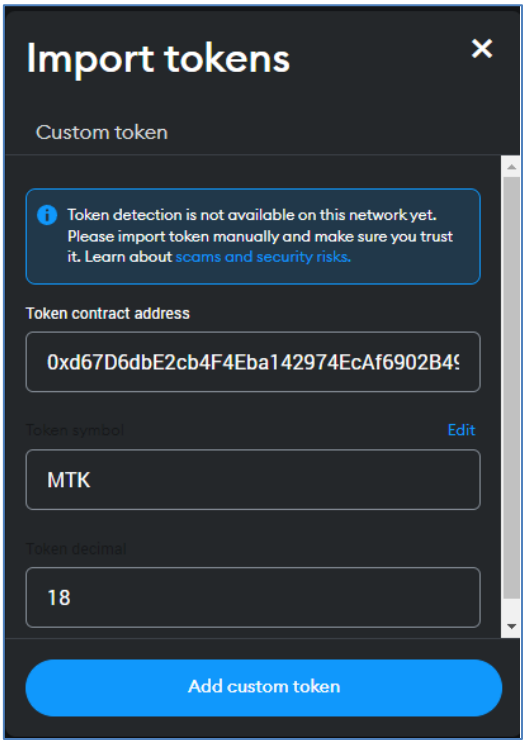
6. You can transfer tokens between accounts and check the balance of each account. You can copy the address of deployed contract.

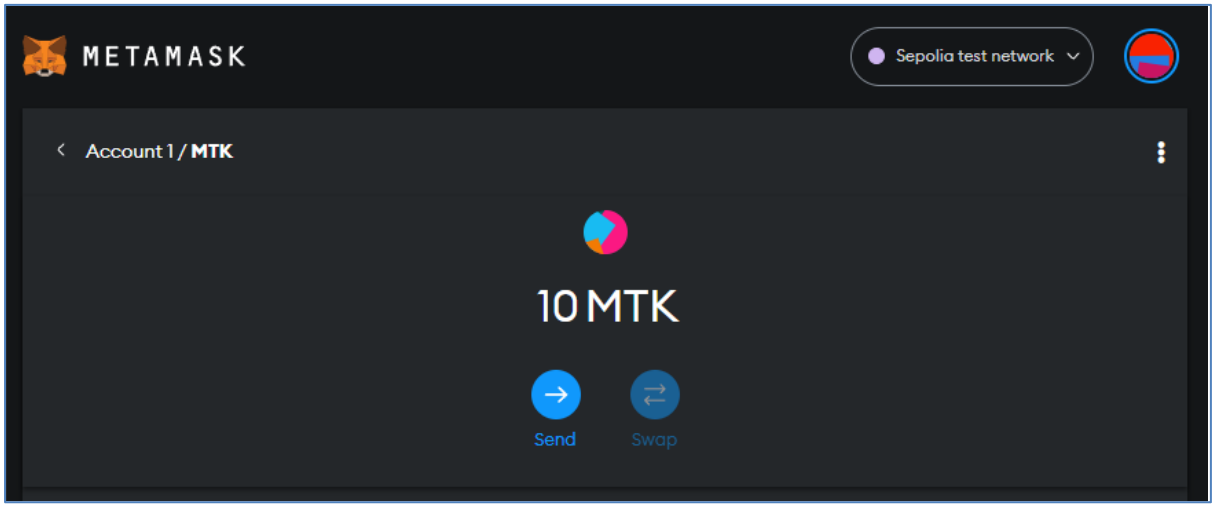


7. You can paste the address of the deployed contract on Ethereum Scan to check for the deployed contract.




Account 1
0x24B...eCE0
0.0971 SepoliaETH
$170.68 USD
Buy
Send
Swap
Assets
Activity
Portfolio site
Contract deployment
Mar 23 · remix.ethereum.org
-0 SepoliaETH
-$0.00 USD
Receive
Mar 23 · From: 0x428...84ee
0.1 SepoliaETH
$175.86 USD


Import tokens
Custom token
Token detection is not available on this network yet. Please import token manually and make sure you trust it. Learn about scams and security risks.
Token contract address
0xd67D6dbE2cb4F4Eba142974EcAf6902B4
Edit
MTK
18
Add custom token



8. You have successfully created your own cryptocurrency named MyTokencoin (MTK).

Conclusion:

In conclusion, we have successfully designed and developed a simple cryptocurrency using Metamask and Remix IDE. We have defined the basic structure of the smart contract, implemented the transfer function, and deployed the contract on the Ethereum blockchain using Remix IDE. This lab experiment provides an introduction to the world of blockchain development and demonstrates how to use Metamask and Remix IDE to create and deploy smart contracts. With further exploration and experimentation, one can create more complex smart contracts and build decentralized applications on top of the Ethereum blockchain.