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 : Read the Chain – Web3.js Basics

Objective/Aim:

To learn how to **connect a web frontend (React)** to an **Ethereum smart contract** using **Web3.js**, and read data (like count value) from the blockchain.

Apparatus/Software Used:

- Laptop/PC
- MetaMask
- Remix IDE
- Web3.js
- Vs code
- React

Theory/Concept:

1. Blockchain: A decentralized database where data (like variables in a smart contract) is stored across a network.

2. Smart Contract: A program deployed on blockchain that holds logic and variables.

3. ABI (Application Binary Interface): A JSON file that helps frontend apps understand how to talk to a contract.

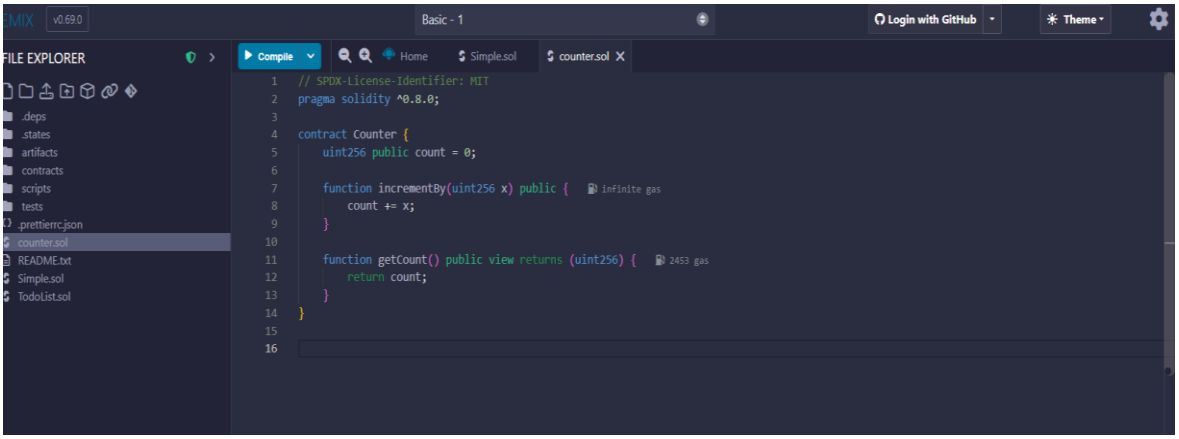
4. Web3.js: A JavaScript library that connects web apps to Ethereum.

5. MetaMask: A browser extension wallet to sign blockchain transactions.

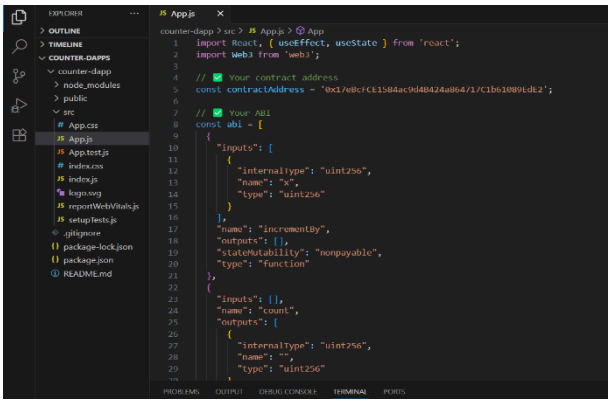
6. React: A JavaScript library for building user interfaces.

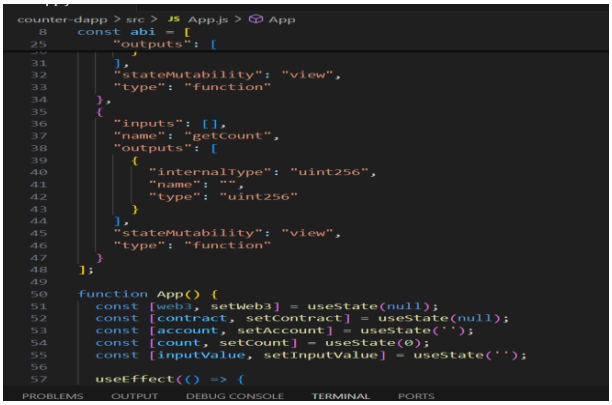
Procedure:

1. Go to remix Ethereum IDE and create a new file (eg. Counter.sol) after creating file write the smart Contract.

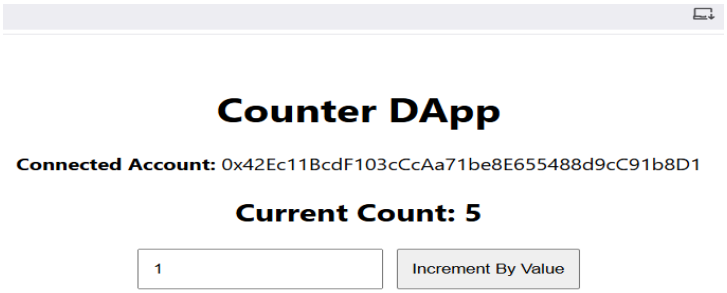


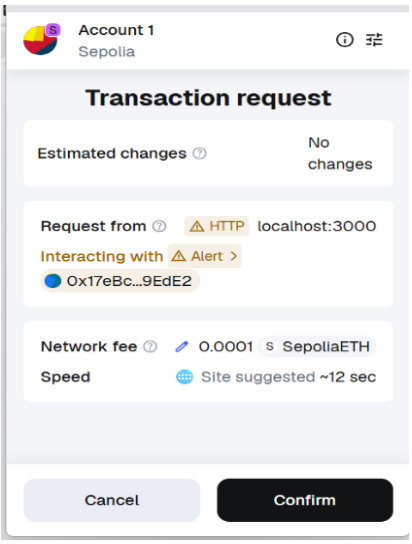
2. After that compile it and deploy using Injected Web3 with MetaMask.
3. After deployement Copy the deployed contract address and ABI.
4. Now go to Vs code and write frontend in App.js and past the contract address and ABI.



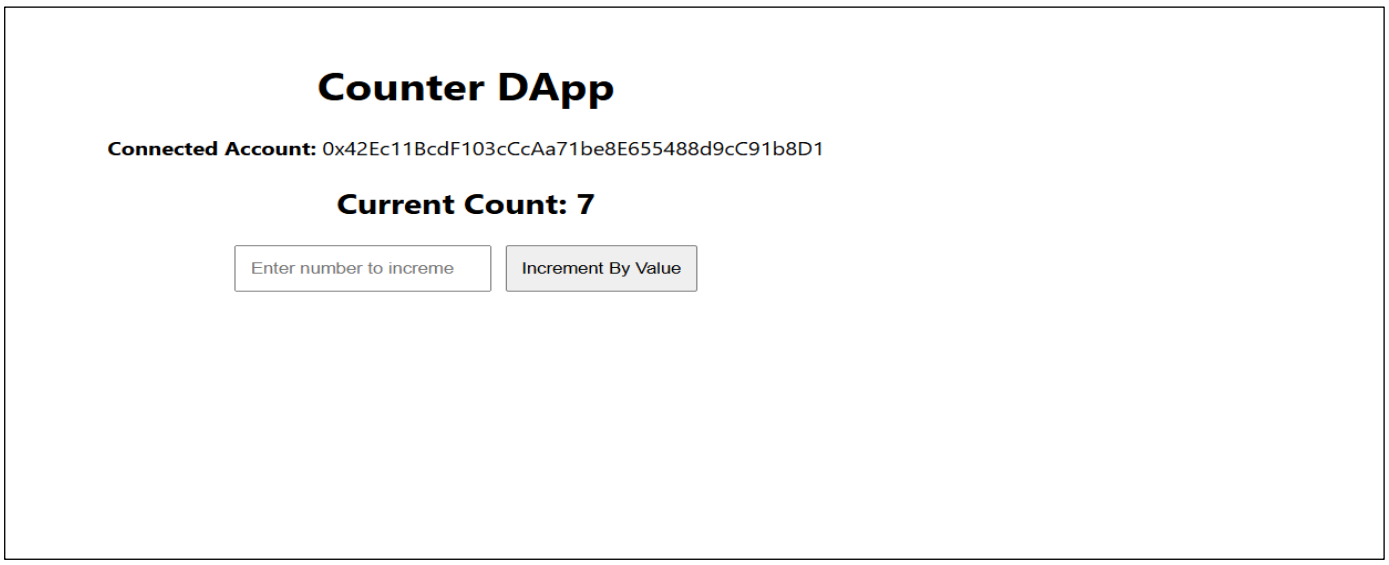


5. After this go to the terminal and run the code.
6. In the output first we have to connect with MetaMask then enter a number in input then Click “Increment By Value” then confirm the transaction in MetaMask and see the updated value from the blockchain.





Procedure:



Observation:

Using Web3.js, we were able to successfully connect to the blockchain, read smart contract data, and verify that the expected output matched the deployed contract's state.

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. :

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