



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: Frontend Connect – Web3.js Integration**

### \*Coding Phase: Pseudo Code / Flow Chart / Algorithm

- Open Remix IDE and write the SimpleStorage.sol smart contract.
- Compile the contract using the Solidity compiler in Remix.
- Copy the generated ABI (Application Binary Interface) after successful compilation.
- Deploy the contract to the Sepolia Testnet using MetaMask.
- Copy the deployed contract address from Remix.
- Create a React frontend project using create-react-app.
- Add the contract address and network details to a .env file in the React project.
- Install web3.js to enable interaction with the blockchain.
- Connect the frontend to the smart contract using the ABI and contract address.
- Design the user interface in App.js and use web3.js functions to store and retrieve data from the blockchain.

### \* Software used:

- Laptop
- Visual Studio Code (code editor)
- MetaMask wallet (browser extension)
- Remix IDE (web-based smart contract development tool)
- Node.js
- React (created using create-react-app)
- Web3.js (Ethereum JavaScript interaction library)
- dotenv (for managing environment variables)

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

## \* Testing Phase: Compilation of Code (error detection)

- Open Remix IDE and create a .sol file named `SimpleStorage.sol`, then write the smart contract.
- Compile the smart contract and copy the generated ABI.
- After successful compilation, deploy the contract and select **Injected Provider – MetaMask** as the environment.
- Once deployed, copy the contract address from the **Deployed Contracts** section for later use.
- Use the `web3.js` library to build a frontend interface and interact with the deployed contract through your MetaMask wallet.

```

SOLIDITY COMPILER
COMPILER + 0.830+commit.73712a01
Include nightly builds
Auto compile
Hide warnings
Advanced Configurations
Compile simpleStorage.sol
Compile and Run script

```

```

5 uint256 private data;
6
7 function set(uint256 _data) public {
8     data = _data;
9 }
10
11 function get() public view returns (uint256) {
12     return data;
13 }
14

```

ENVIRONMENT: Injected Provider - MetaMask  
Sepolia (11155111) network

ACCOUNT: 0xc00...016C7 (0.2249261056...)

GAS LIMIT: Estimated Gas (3000000)

VALUE: 0 Wei

CONTRACT: SimpleStorage - SimpleStorage.sol

Deploy

Deploy a contract

This site wants you to deploy a contract

Estimated changes: No changes

Request from: remix.ethereum.org

Network fee: 0.0002 s SepoliaETH

Speed: Market ~12 sec

Cancel Confirm

Account 1: 0x517D0...0B86B

0.0359 SepoliaETH

Buy/Sell Swap Bridge Send Receive

MetaMask MISSIONS

Tokens DeFi NFTs Activity

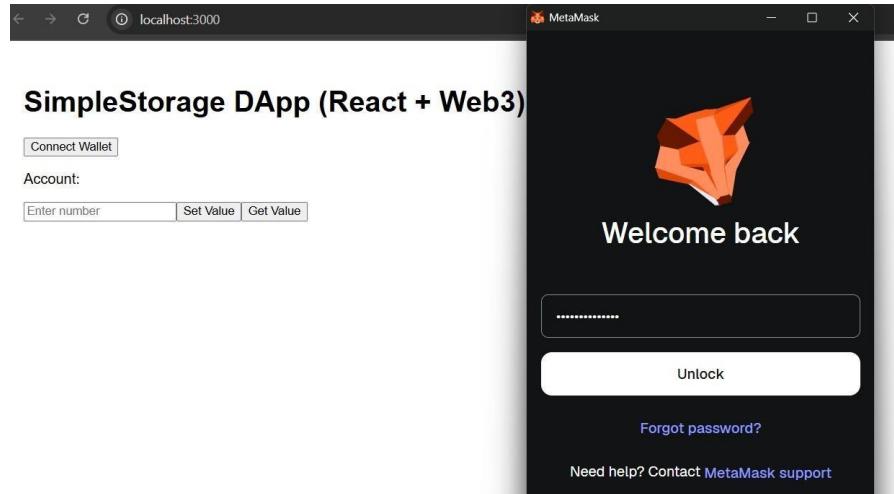
Create Order Confirmed Jul 24, 2025

## \* Implementation Phase: Final Output (no error)

- Create a folder named **frontend**, open the terminal, and navigate to the frontend directory.
- Inside the frontend folder, create a `.env` file to store the contract address.
- In the `frontend/src/` directory, create an `ABI.json` file to store the contract ABI.
- Open the `App.js` file and write the frontend code, including the wallet connection function.
- In the terminal, install all required packages using the Node Package Manager (npm).

- Run the project using the command **npm start**.
- Once the app starts, interact with the user interface to connect the wallet and use the **set** and **get** functions.

## \* Implementation Phase: Final Output (no error)



## SimpleStorage DApp (React + Web3)

Account: 0x19b9a3978978a4165cE5194FDD1CbD4f6a79525F

Set Value Get Value

Stored Value: 10

## 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		
<b>Total</b>	<b>50</b>		

*Signature of the Student :*

*Name :*

*Signature of the Faculty :*

*Regn. No. :*

Page No.....