UNIVERSITY COLLEGE OF ENGINEERING KANCHEEPURAM

(A Constituent College Of Anna University, Chennai)

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

NAAN MUDHALVAN PROJECT DESIGN PHASE

<u>MICROFINANCING USING BLOCKCHAIN</u>

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Project Design Phase-I

Solution Architecture

Date	30/10/2023

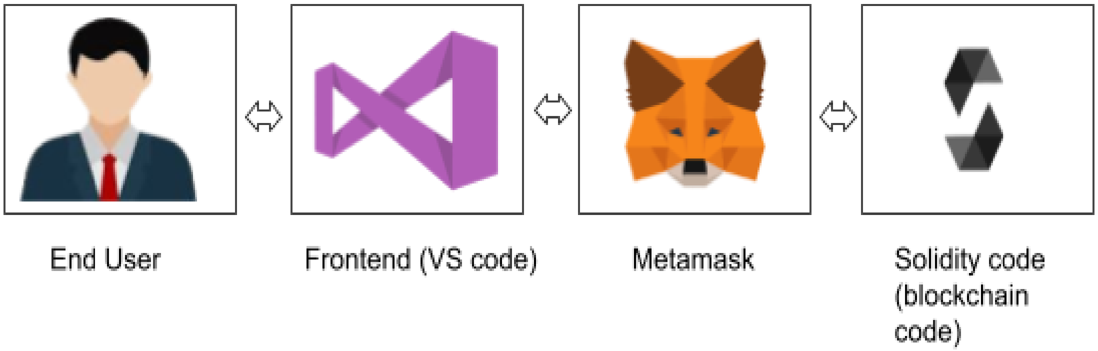
Team ID	**NM2023TMID00942.**
Project Name	**MICROFINANCING USING BLOCKCHAIN**
Maximum Marks	4 Marks

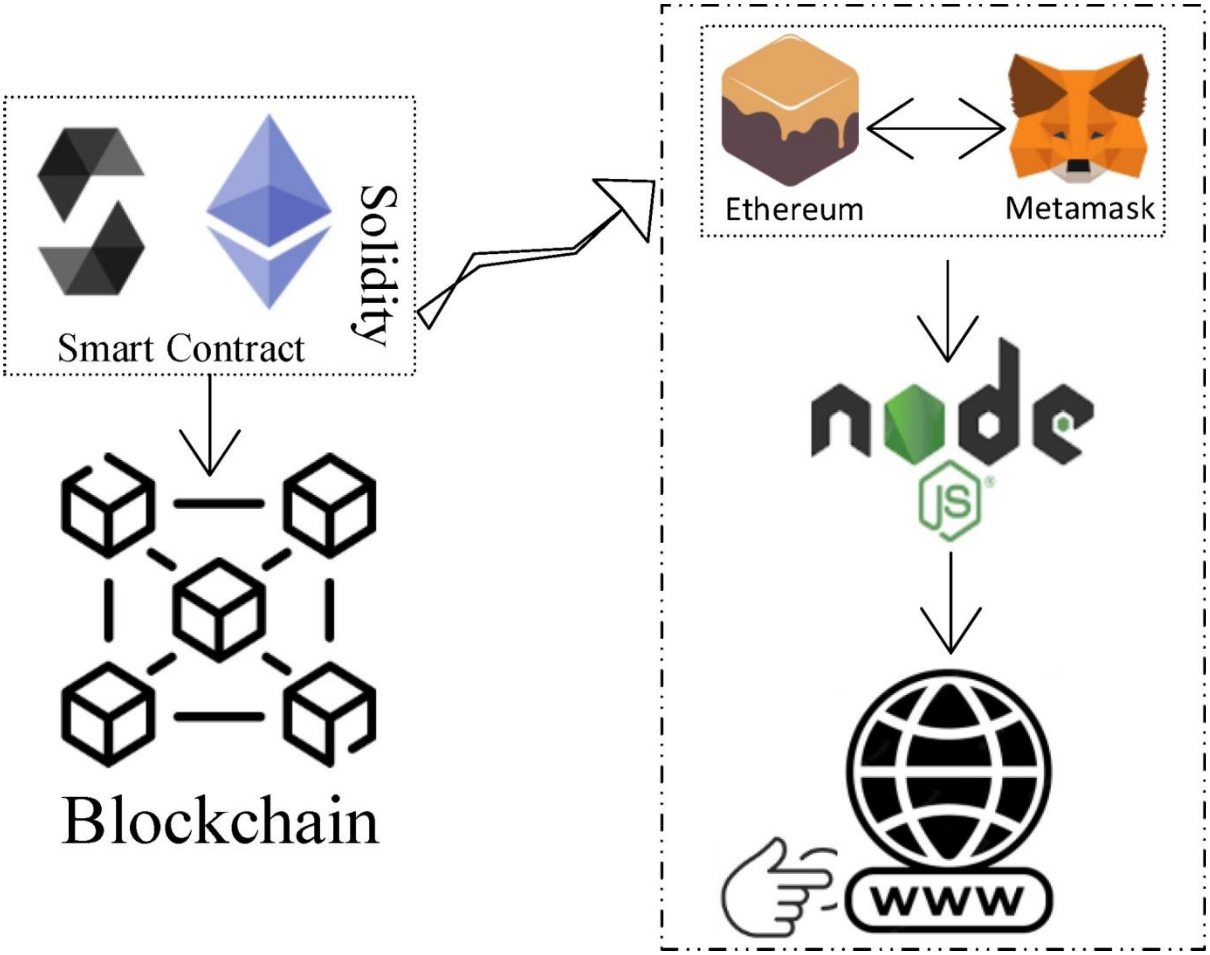
Solution Architecture:

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

- Find the best tech solution to solve existing business problems.
- Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
- Define features, development phases, and solution requirements.
- Provide specifications according to which the solution is defined, managed, and delivered.

Example - Solution Architecture Diagram:





5.2 Solution Architecture

The solution architecture for microfinancing using blockchain is a crucial component in designing a system that offers transparency, security, and efficiency in providing financial services. Here's a high-level overview of the key components and considerations for such an architecture:

Blockchain Infrastructure:
Choose an appropriate blockchain platform (e.g., Ethereum, Binance Smart Chain, Hyperledger Fabric) based on your specific use case and requirements.
Implement the blockchain network, including nodes, consensus mechanisms, and smart contract execution.

User Interface (UI):
Develop a user-friendly front-end application for borrowers, lenders, and administrators to interact with the microfinancing platform.

Payment Integration:
Integrate cryptocurrency wallets or stablecoins for loan disbursement and repayments.
Enable seamless fund transfers between lenders and borrowers.

APIs and Middleware:
Develop APIs and middleware to facilitate communication between the front-end application and the blockchain.
Implement middleware for real-time data processing, validation, and integration with external systems.

Analytics and Reporting:
Incorporate analytics tools to monitor and analyze the performance of the microfinancing platform.
Generate reports on loan portfolio performance, user behavior, and financial metrics.

Governance and Administration:
Implement a governance model for platform management and decision-making.
Include administrative tools for platform administrators to manage users, loans, and system parameters.

Integration with External Systems:
Connect with external financial institutions, credit bureaus, and payment gateways to enhance the platform's capabilities and data sources.

Prerequisite

1 download node.js : Node.js

2 download vs code: **Li4nk**

3 download metamask : https://metamask.io/

Steps to complete the project

Step 1:-

1. Open the Zip file and download the zip file.

Extract all zip files

Step 2 :

1.Open vs code in the left top select open folder. Select extracted file and open .

2. Select the projectname.sol file and copy the code.

3. Open the remix ide platform and create a new file by giving the name of projectname.sol and paste the code which you copied from vs code.

4. Click on solidity compiler and click compile the projectname.sol

5. Deploy the smart contract by clicking on the deploy and run transaction.

6. select injected provider - MetaMask. In environment

7. Click on deploy. Automatically MetaMask will open and give confirmation. You will get a pop up click on ok.

8. In the Deployed contract you can see one address copy the address.

9. Open vs code and search for the connector.js. In contract.js you can paste the address at the bottom of the code. In export const address.

10. Save the code.

Step 3:

open file explorer

1. Open the extracted file and click on the folder.

2. Open src, and search for utiles.

3 . You can see the frontend files. Select all the things at the top in the search bar by clicking alt+ A. Search for cmd

4. Open cmd enter commands

```
npm install

npm bootstrap

npm start
```

5. It will install all the packages and after completing it will open {LOCALHOST IP ADDRESS} copy the address and open it to chrome so you can see the frontend of your project.