To-Do List App using Ethereum Blockchain
(Smart Contracts and Solidity)

Project submitted for the partial fulfillment of the requirements for the course

CSE 337L: Cryptography Lab

Offered by the

Department Computer Science and Engineering

School of Engineering and Sciences

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1. Introduction

The Purpose of the project is to create a To Do List Application using Ethereum Blockchain Network and Metamask. This To Do List will be decentralized application which will be built on Ethereum platform. This application will have some To Do tasks list which we have to complete after completion of a task, the task can be removed from the list.

2. Background

As we all are busy with our everyday lives and our hectic schedule, we generally tend to do things in an unorderly manner which costs us more time doing the work at hand. So, to solve this issue the to-do list application will help the user to keep track of all the work which he/she has assigned in the app and help the user to meet his/her goals every day.

Figure 1

This To-Do List App is like a google calendar which is Decentralized a group of clients can see each others schedules so that there can be fluency in their work.

3. Proposed Approach

The file structure of the TO-DO List APP consist of two main folders -> Client and Backend. In the client folder it has all modules and component of front end for the app by which user can interact and add all his tasks. In backend folder is where the functionality resides, the smart contracts are written, compiled and deployed. These contracts are then connected to a Ethereum wallet like MetaMask so that it can connect to any of the testnets like Rinkeby, and using the trufflecontract library, as it makes interacting with contracts easier and more robust.

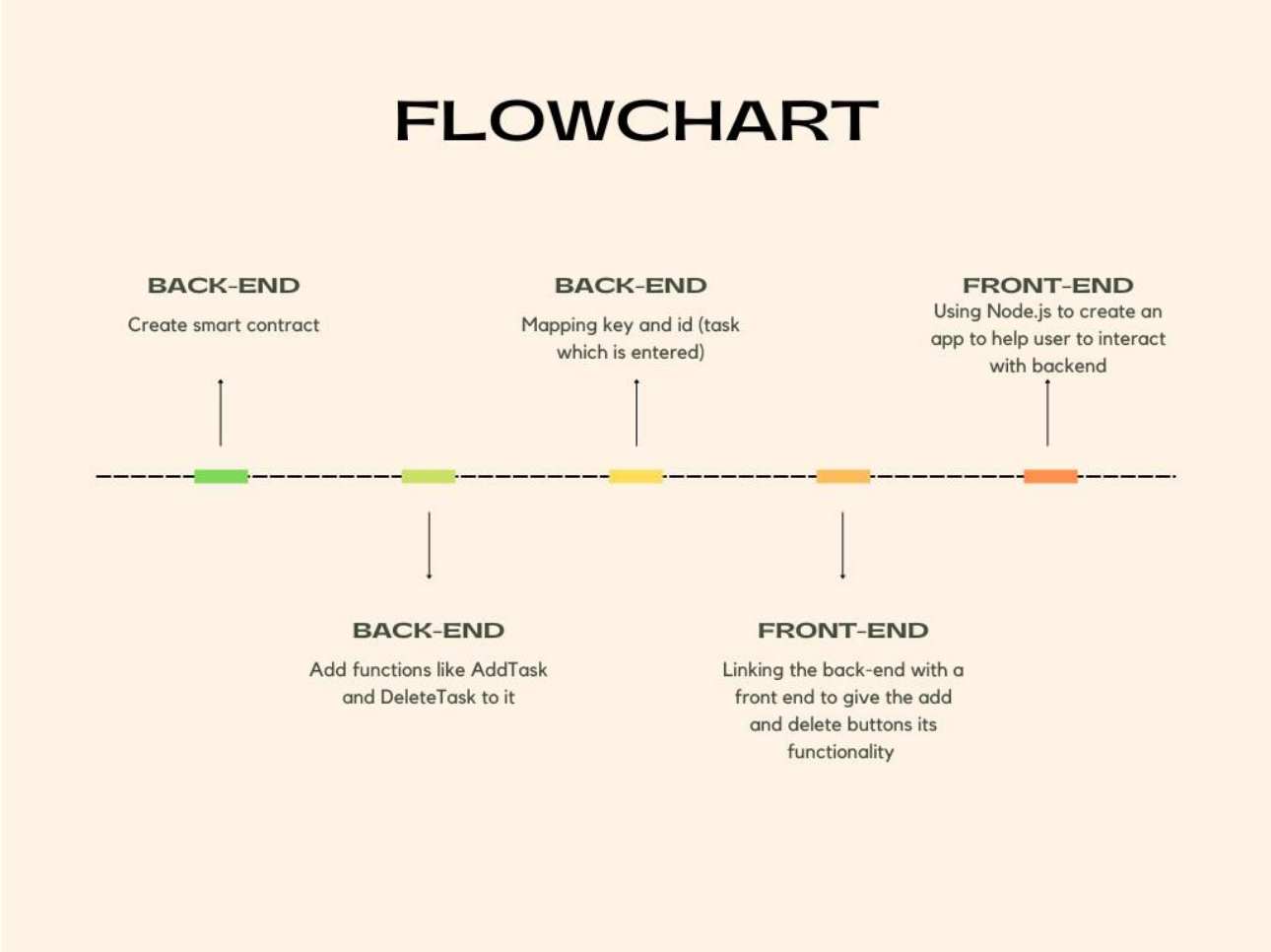
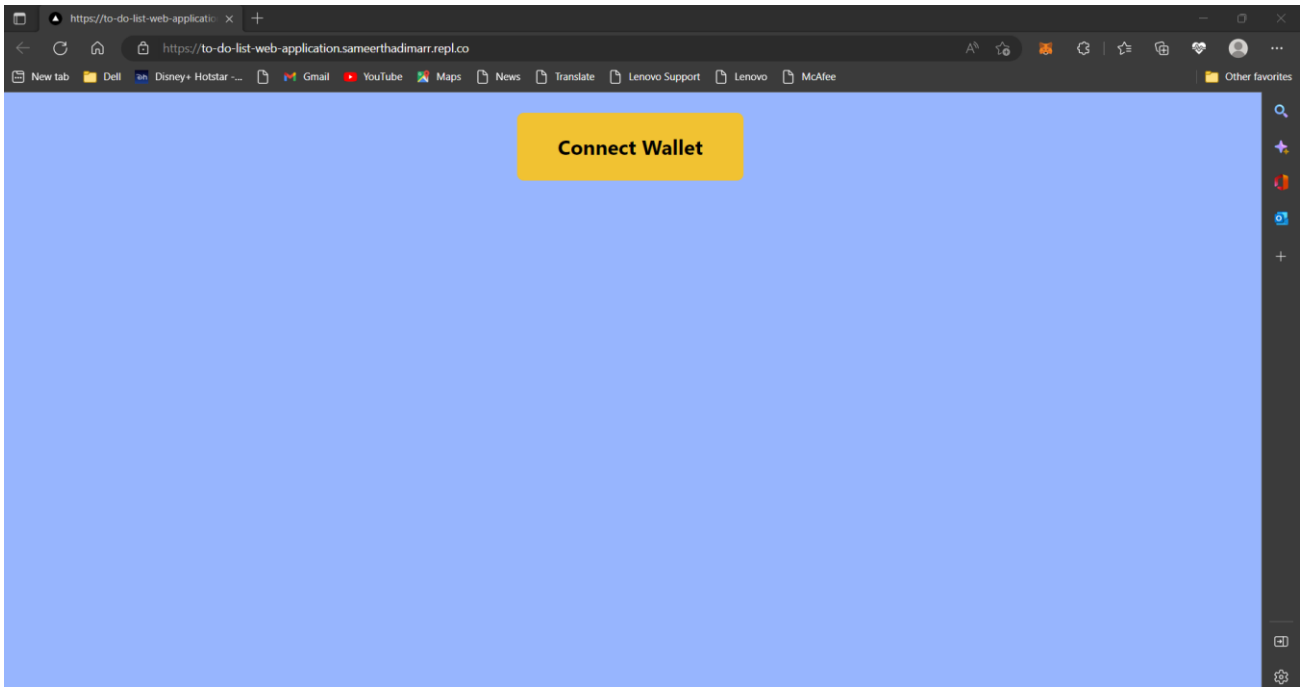


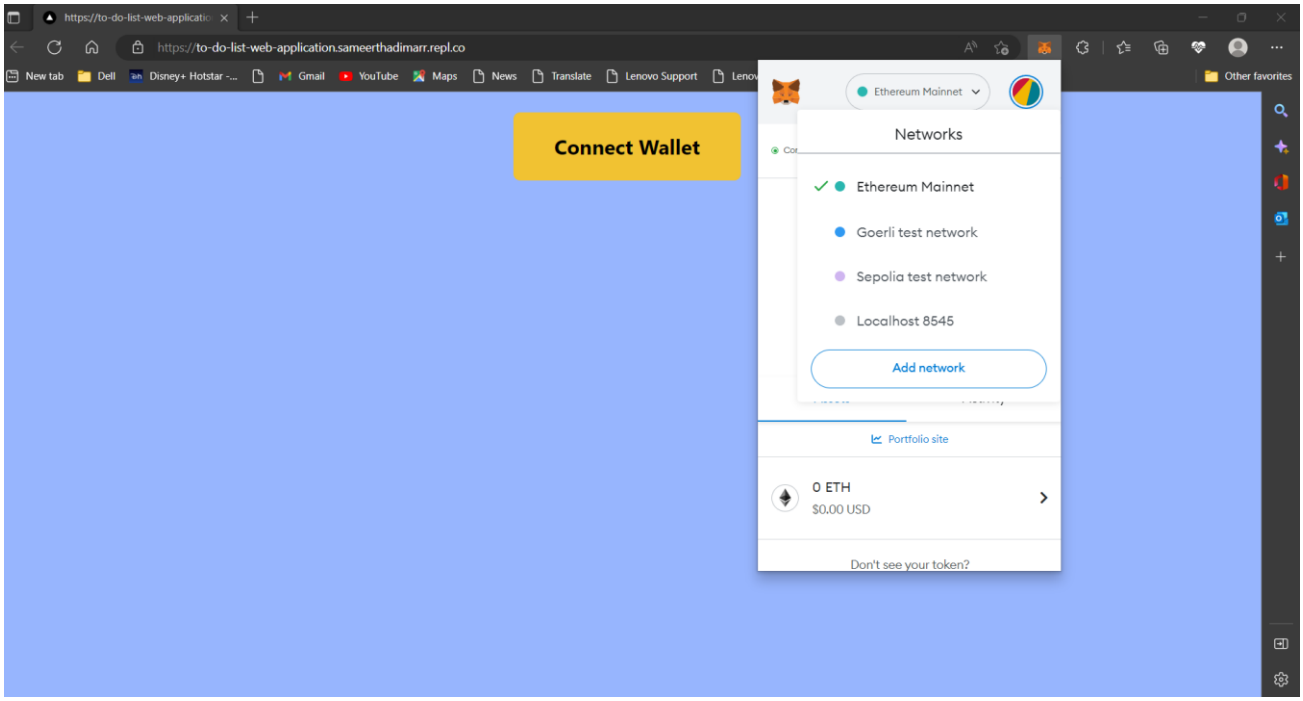
Figure (2) Flowchart Of To-Do List Application

The Proposed Approach we have is shown below

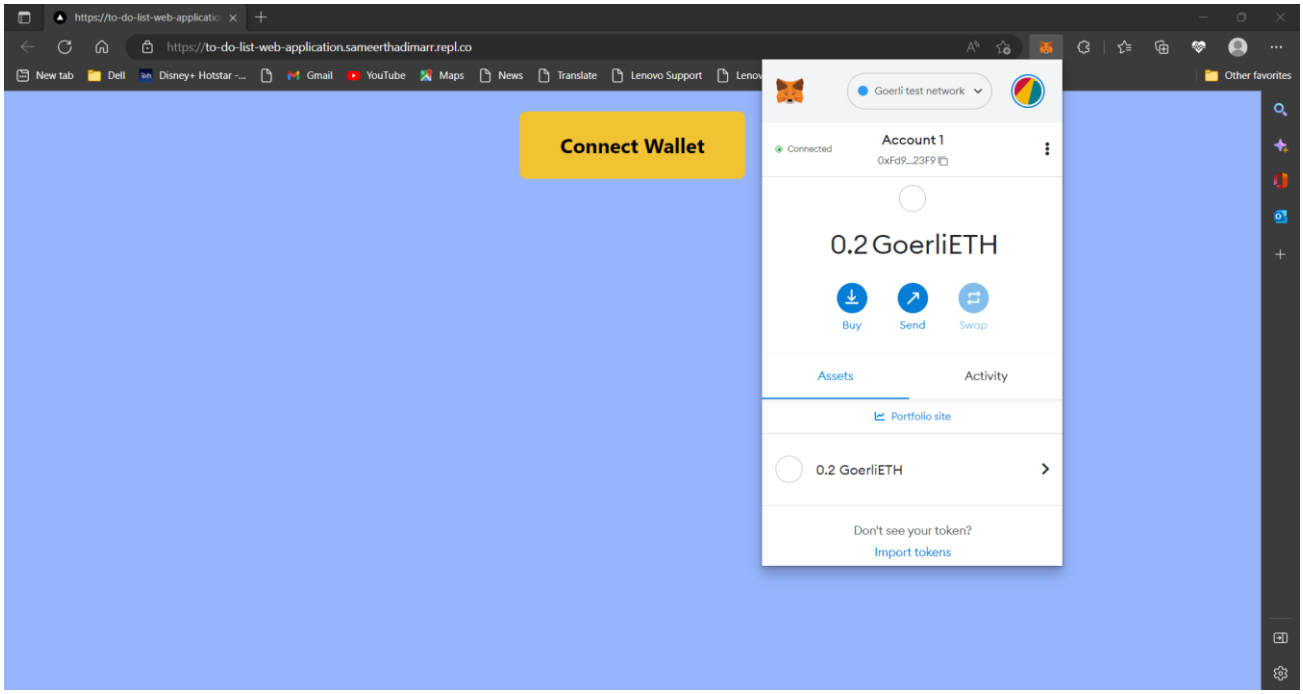
<u>Step 1:</u> We have to use a wallet such as Metamask (As Extension).

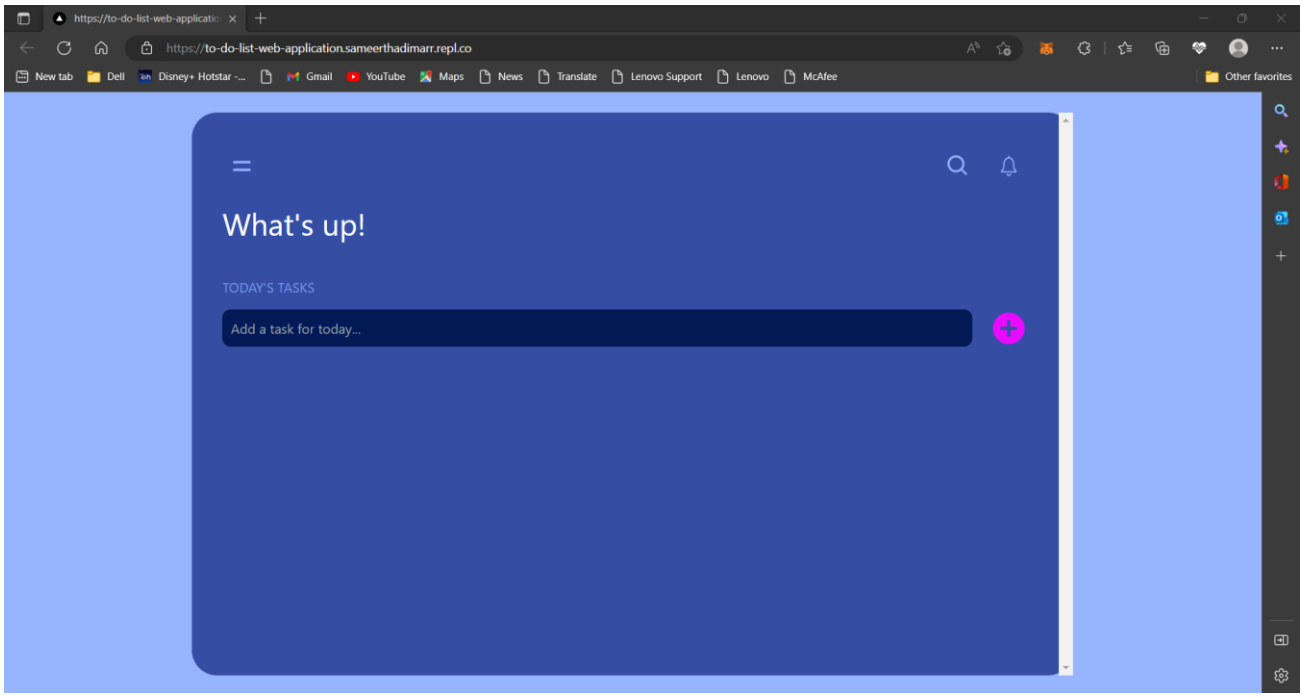


<u>Step 2:</u> We Have to connect to Metamask



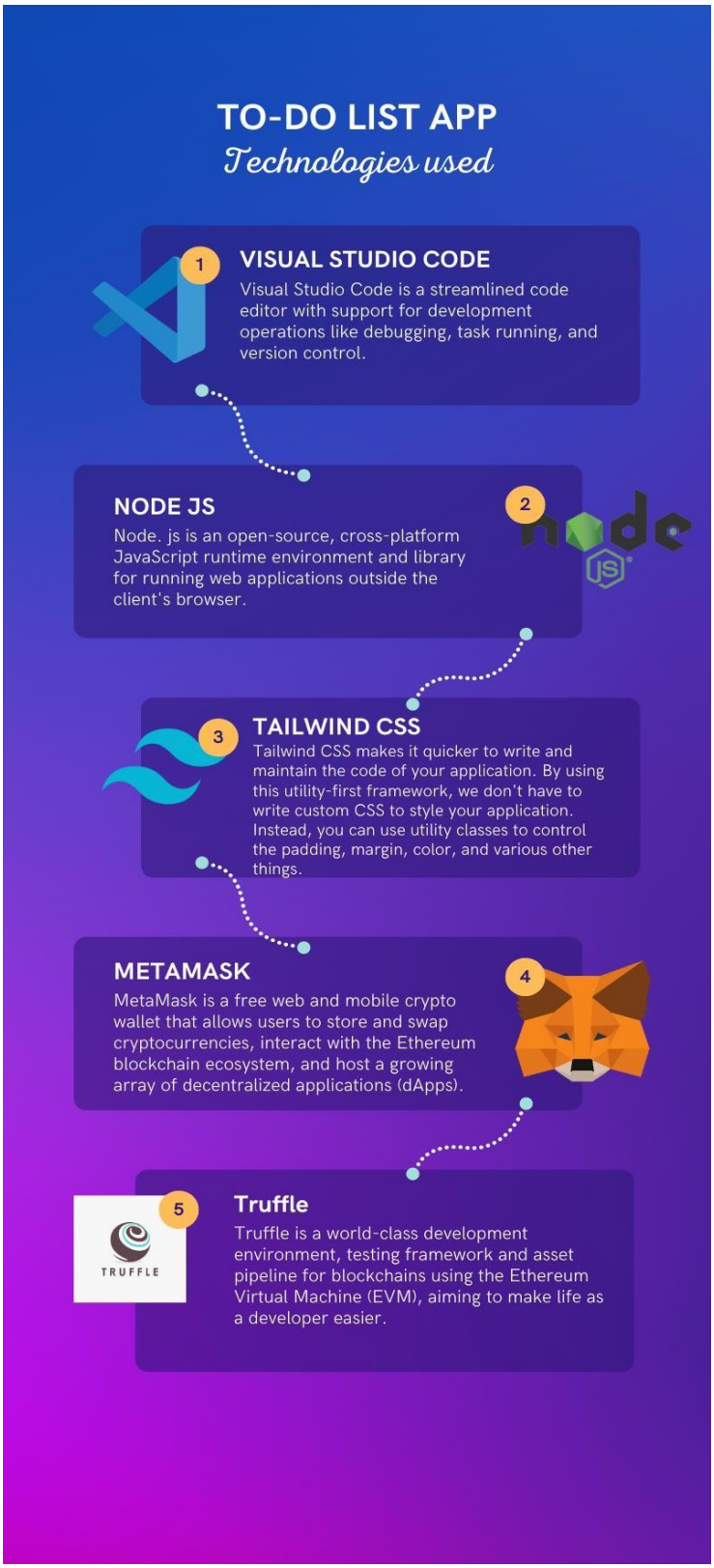
<u>Step 3:</u> We Have to Choose Goerli test network to connect metamask.





After connecting to Metamask this above interface will open where we a have add task that we want to complete.

4. Technologies Used



The Technologies Used For this To-Do List Web Application

1. Replit Software
2. Metamask Wallet
3. Truffle

Programming Languages Used

1. Solidity (Smart Contract Language)
2. Node.js (For Backend)
3. Html, CSS (For Frontend)

5. Results & Discussion:

As our final result we have an app where we could add and remove task which is far easier to use for the user. Using blockchain and Ethereum technology we get an app which is way more secure than traditional notepads and other apps. The authentication system will help the user to keep his list private from other users and accessible only to him.

6. Conclusion

From this project we achieved to make our everyday list in secure way which we can access anytime and anywhere on any device, and not restricting to one device. One of the few limitations of this project is that it lacks the functionality to share one user's Task to another user. We plan to add this functionality as well as functionality to save all tasks on calendar and to delete all the tasks at once rather deleting it one by one.

7. References

https://next-stack.github.io/docs/advanced/truffle-with-metamask