Group C: Assignment No 2

Aim: - Create your own wallet using Metamask for crypto transactions.
Objectives: Student will be able to learn
1. Concept of Meta mask

2. own wallet using Metamask for crypto transactions

Theory: -
A Brief introduction to MetaMask
MetaMask is an open-source, straightforward, and easy-to-use cryptocurrency wallet. It functions as a web browser extension available for Chrome, Firefox, Brave, or a mobile application for iOS or Android. Initially, this wallet supported only Ether and ERC-20 tokens, and now it is compatible with ERC-721 and ERC-1155 token standards. Furthermore, MetaMask benefits include interaction with websites; hence, it can function as a connection node for various DApps on Ethereum.

Adrian Devis and Dan Finlay are the MetaMask developers. Their idea was revolutionary and straightforward; they intended to create a web browser extension that would allow managing cryptocurrency and using the browser for fast and secure access with DApps. ConsenSys Software Inc. — a development company, focusing on applications that use Ethereum 's blockchain, implemented the idea in 2016.

The solution used Ethereum 's interface and a web API called web3.js. This Ethereum library is the fundament of MetaMask since it allows the browser to interact with the local or remote blockchain nodes via HTTP, IPC, and WebSocket; also, it gained the ability to record and read data from smart contracts, transfer tokens, etc. In another way, web3.js allowed the blockchain developers to create proxy and communication bridges between MetaMask, DApps, and the user.

Adrian Devis and Dan Finlay admit that their idea was great. Yet, the technical implementation was super complicated, especially in providing security for the users (web wallets are considered the most vulnerable to hacker attacks). Nonetheless, ConsenSys succeeded, and on the 14th of July in 2016, they offered the first version of MetaMask web browser cryptocurrency wallet for Chrome. Later, they presented a version for Firefox, Brave, and other popular browsers. In 2019 they also launched the mobile version of the MetaMask cryptocurrency wallet.

How does the MetaMask wallet function?
As we mentioned above, the MetaMask cryptocurrency wallet employs the web3.js library to function. This library is a part of the official Ethereum product. The library was developed focusing on the requirements of web applications that could interact with the Ethereum blockchain and take advantage of all blockchain 's benefits and functions. MetaMask is a cryptocurrency wallet for Ethereum and an instrument that helps to interact with DApps. MetaMask connects the extension to the DApp so that to fulfill both tasks. When the application identifies the MetaMask, it creates a connection, and the user can start using all the features of a specific application.

For instance, it can assets trading, access to resources or services, or any other task within the capability of a DApp. Each action has its cost (transaction fee) that must be paid in Ethereum or any specified token. MetaMask wallet has all instruments and protocols for this purpose.

Hence, we can state that Metamask also controls the interaction of the user and DApp, and processes the operations required for specific actions, besides the function of a wallet. Reliable and secure cryptography and safe internet connection are the environments for these operations.

Furthermore, MetaMask can generate asymmetric keys, store them on a local device, and manage access to the keys. To sum up, MetaMask is a super-safe extension.

Extended functions set for MetaMask clone

To help your MetaMask wallet clone become famous, you should add some advantages that highlight it from the competitors and improve the user experience.

These can be the following:

Linking an account. Your users will find it useful to be able to buy a cryptocurrency and exchange it for fiat within the wallet. This will be possible if you develop a wallet like MetaMask and add the feature of linking bank accounts, credit/debit cards, PayPal, or other online payment systems.

eCommerce integrations. We mean integrating the wallet with exchanges, NFT marketplaces, decentralized applications, shops, and other services that the users might find useful.

Multilingual interface. If you focus on a market where all people speak the same language, you might neglect this aspect. However, your intentions are global, and you should add as many languages as possible to increase the target audience.

Push notifications. The notifications will inform the users of receiving payments, ending transactions, rapid exchange rate changes in the investment account, system updates, suspicious activity, etc.

VIP support. Numerous cryptocurrency trading platforms offer support for an additional fee. This may include 24/7 support, communication with a personal specialist, etc.

QR scanner. This is another useful feature that allows your users to make payments even faster. Moreover, it will decrease the number of transfers done by mistake.

Dapps Architecture
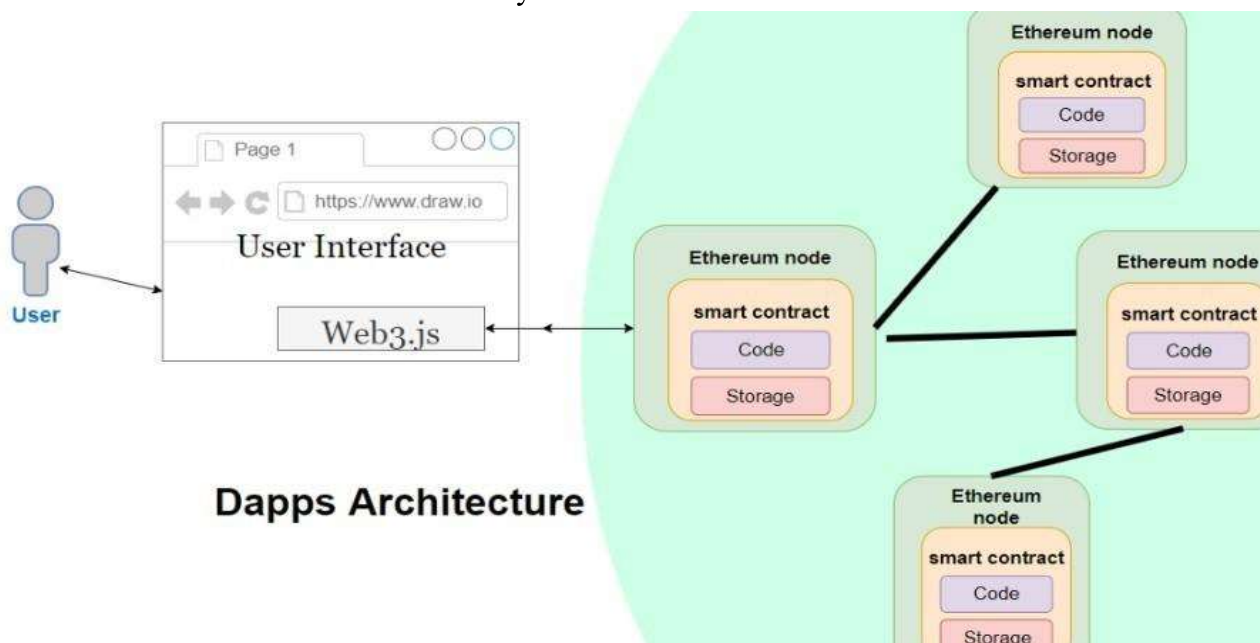
Conclusion: We have successfully created our own wallet using Metamask for crypto transactions.