

Assignment No. 1

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Date	

Kavita Sahu
BTEC019109

Title: - MetaMask

Date of completion:-

Objective:-

1) To allow the user to store and swap cryptocurrencies, interact with the Ethereum blockchain ecosystem.

Problem Statement:-

Installation of Metamask and study spending ether per transaction.

Software and Hardware Requirements:-

Theory:-

MetaMask is a software cryptocurrency wallet used to interact with the Ethereum blockchain.

It allows users to access their Ethereum wallet through a browser extension or mobile app, which can then be used to interact with decentralized applications.

Metamask is developed by ConsenSys Software Inc, a blockchain software company focusing on Ethereum-

based tools and infrastructure.

Metamask allows users to store and manage account keys, broadcast transactions, send and receive Ethereum-based cryptocurrencies and tokens, and securely connect to decentralized applications through a compatible web browser or the mobile apps built in browser.

The application includes an integrated service for exchanging Ethereum tokens by aggregating several decentralized exchanges to find the best exchange rate.

MetaMask is a browser plugin that serves as an Ethereum wallet, and is installed via any other browser plugin.

Once its installed it allows users to store Ether and other ERC 20 token enabling them to interact with any Ethereum address.

Conclusion -
successfully done the installation of
MetaMask.

Assignment No. 2.

Kavita Sahu
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Title: - MetaMask.

Date of completion: -

Objectivii: -

To create own wallet using MetaMask.

Problem statement -

Create your own wallet using MetaMask
for crypto transactions.

Software and Hardware Requirements -

Theory -

MetaMask is one of the most popular
cryptocurrency wallets.Despite the ups and downs of the
market there are more and more
users each year.MetaMask has about 21 million active
users each month, 80 times more
than in 2019 and significantly
more than any non-custodial
wallet.

MetaMask is a cryptocurrency wallet for Ethereum and an instrument that helps to interact with DApps.

MetaMask connects the extension of to the DApp so that to fulfil both the tasks.

When the application identifies the MetaMask, it creates a connection, and the user can start using all the features of a specific application.

MetaMask wallet key features,

1) Easy to use:-

The first and most apparent benefit of the MetaMask wallet is the ease of use. The wallet offers an intuitive and straightforward user interface that makes the management of cryptocurrencies and interaction with DApps easier than ever before.

2) Hardware wallet support:-

MetaMask service is compatible with hardware cryptocurrency wallets like Ledger or Trezor.

Main functions of a cryptocurrency wallet:-

To develop a cryptocurrency wallet like metamask, one should consider

two roles of users: regular users and administrators.

The average user will use the wallet to store, trade and exchange tokens. The administrators are the employees responsible for proper functioning and management of the wallet.

Conclusion:-

Created own wallet using Metamask for crypto transactions.

Assignment No. 3

KAVITA SAHU
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Title:- Solidity

Date of completion:-

Objective:-

To create smart contracts that implement business logic and generate a chain of transaction records in the blockchain system.

Problem Statement:-

Write a program in solidity to create student data. Use the following constructs:-

Structures

Arrays

fallback

Deploy this as smart contract on Ethereum and observe the transaction fee and gas values.

Software and Hardware Requirements:-

Theory:-

Solidity is a brand new programming language developed by Ethereum, the

second largest cryptocurrency marked by capitalization .

Solidity is an object oriented programming language created specifically by the Ethereum Network team for constructing and designing smart contracts on Blockchain platforms .

- It is used to create smart contracts that implements business logic and generate a chain of transaction records in the blockchain system .
- It act as a tool for creating machine level code and compiling it on the Ethereum Virtual Machine .
- It has a lot of similarities with C and C++ and is pretty simple to learn and understand . For example a "main" in C is equivalent to a "contract" in Solidity .

Like other programming languages Solidity programming also has variable , function , classes , arithmetic operations and many others .

Conclusion :-

Implemented program in Solidity .

Assignment No 4.

Kavita Sahu
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Title:- Survey Report

Date of completion:-

Objective:-

To explain the purpose of the survey

Problem Statement:-

With a survey report on types of Blockchain and its real time use cases.

Theory:-

Types of Blockchain

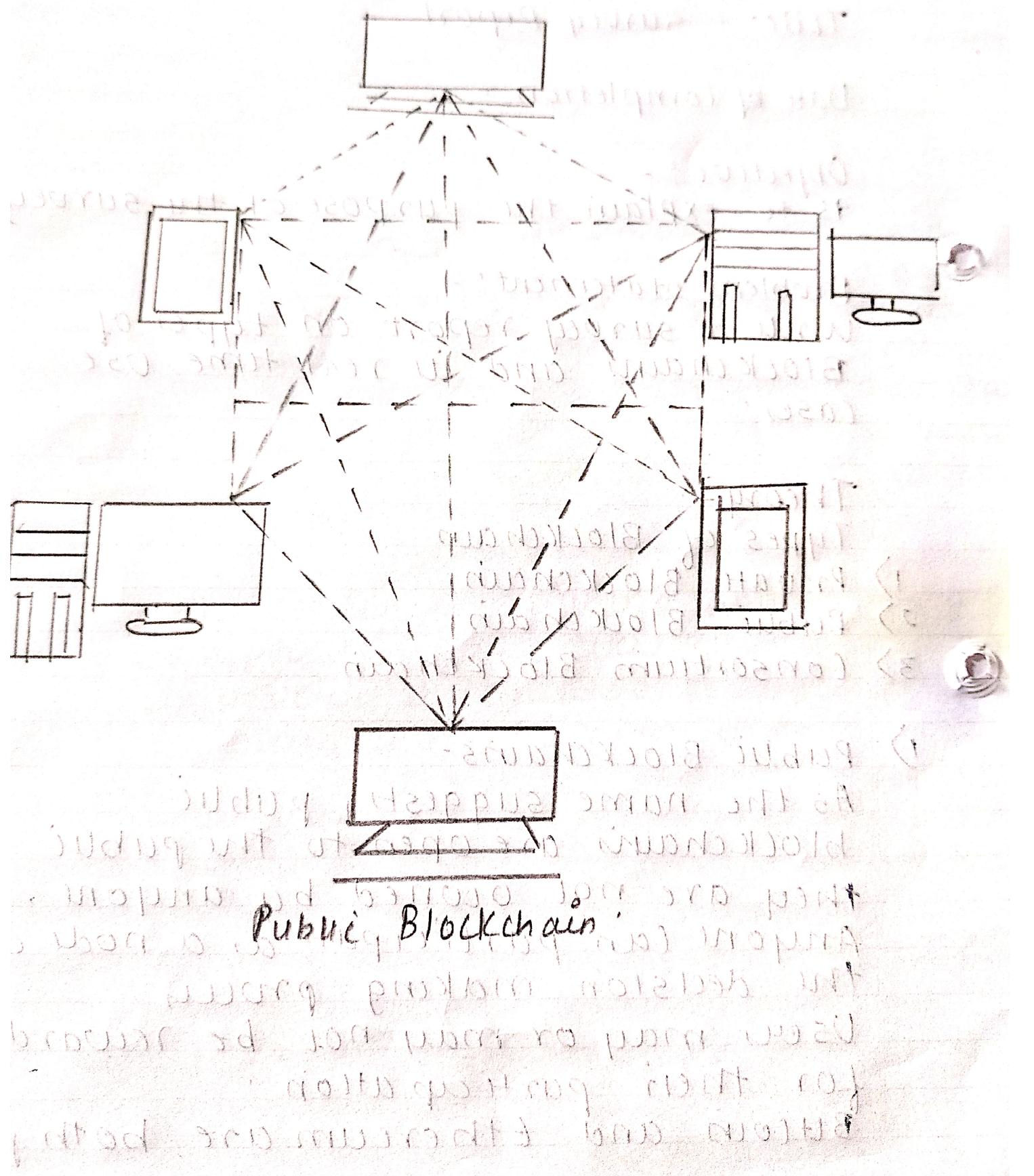
- 1) Private Blockchain
- 2) Public Blockchain
- 3) Consortium Blockchain

1) Public Blockchains-

As the name suggests, public blockchains are open to the public. They are not owned by anyone. Anyone can participate as a node in the decision making process.

Users may or may not be rewarded for their participation.

Bitcoin and Ethereum are both pu

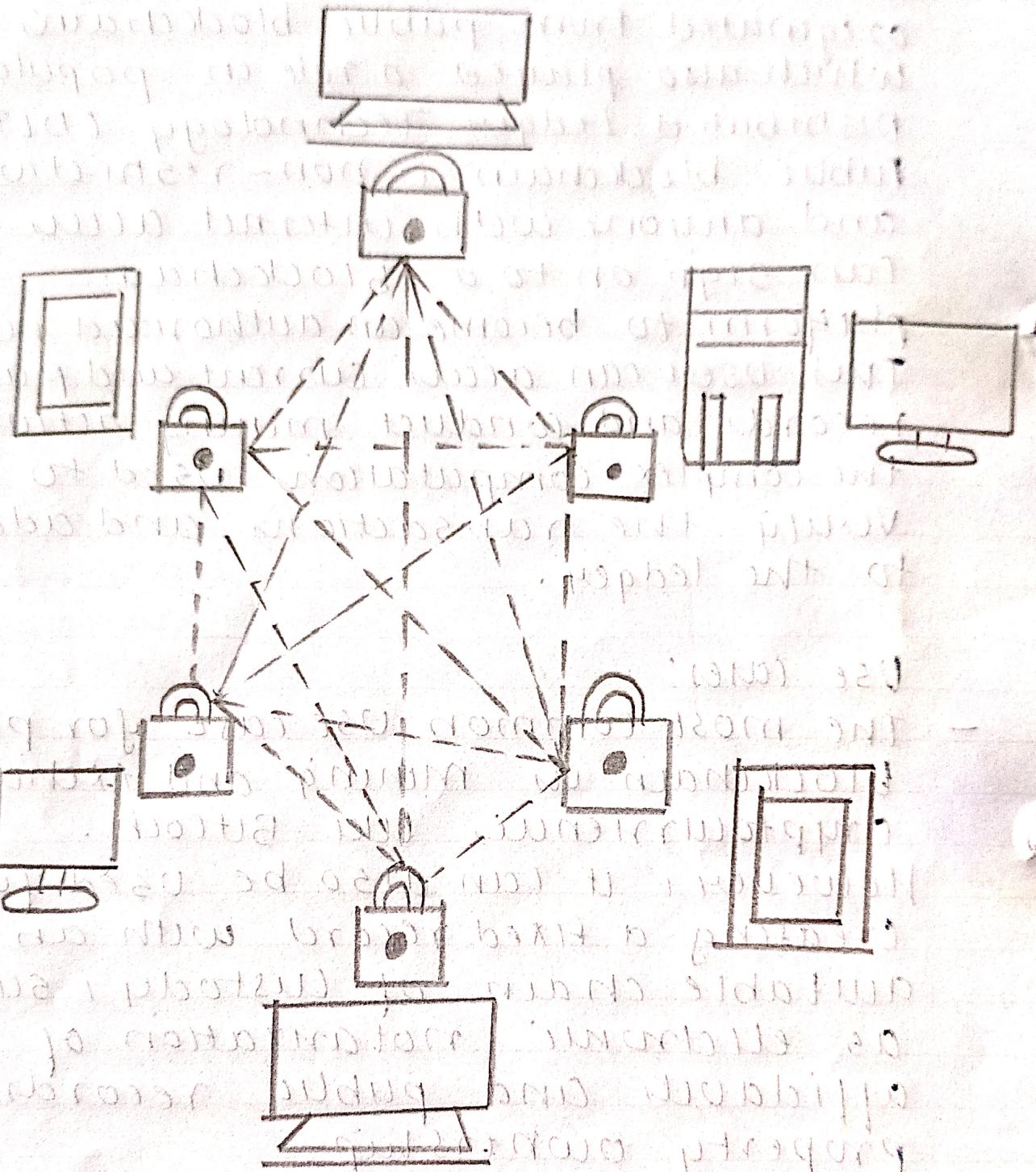


blockchains.

Bitcoin and other cryptocurrencies originated from public blockchains, which also played a role in popularizing Distributed Ledger Technology (DLT). Public blockchain is non-restrictive and anyone with internet access can sign on to a blockchain platform to become an authorized node. This user can access current and past records and conduct mining activities, the complex computations used to verify the transactions and add them to the ledger.

Use cases:-

- The most common use case for public blockchain is mining and exchanging cryptocurrencies like Bitcoin. However, it can also be used for creating a fixed record with an immutable chain of custody, such as electronic notarization of affidavits and public records of property ownership.
- This type of blockchain is ideal for organizations that are built on transparency and trust, such as social support groups.



to the **Private Blockchain Network**,

which is a **closed network** that

2) Private Blockchain Networks:-

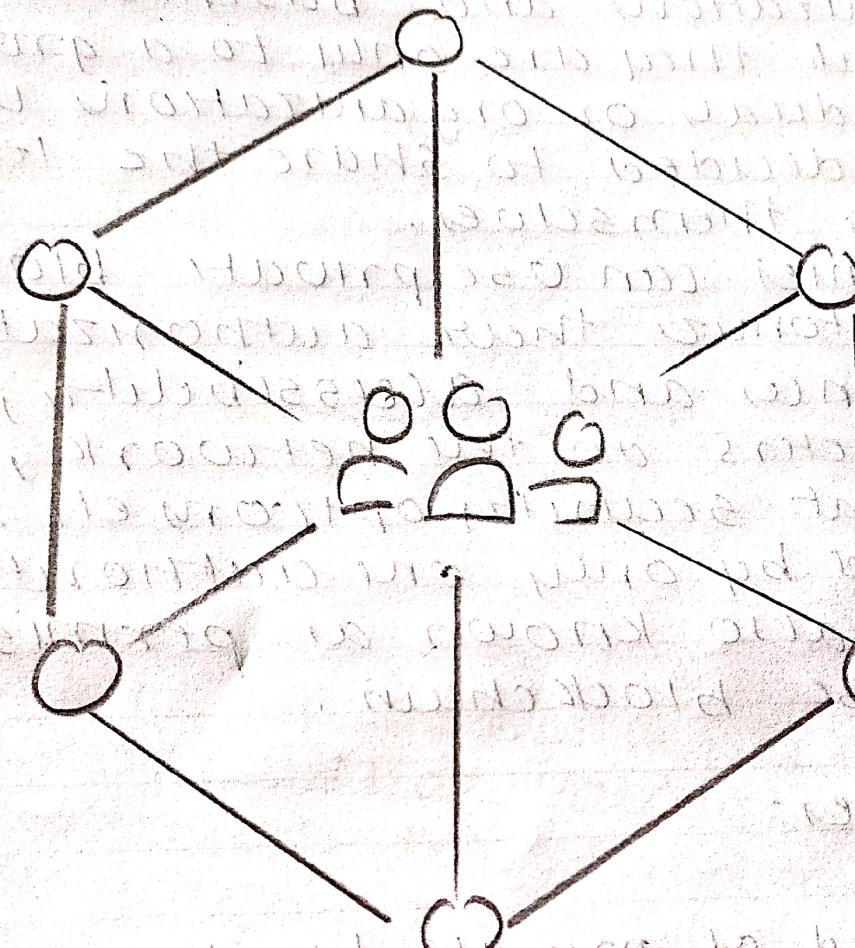
Private blockchains operate on closed networks, and are useful for private organizations and businesses.

That is they are only to a group of individuals or organizations who have decided to share the ledgers among themselves.

Companies can use private blockchain to customize their authorization preferences and accessibility, parameters of the network, other important security options etc. It is managed by only one authority. They're also known as permissioned enterprise blockchain.

Use cases:-

- 1) The speed of private blockchains makes them ideal for cases where the blockchain needs to be cryptographically secure but the controlling entity doesn't want the information to be accessed by the public.
- 2) Other use cases for private blockchain include supply chain management, asset ownership and internal voting.



consortium - **controlliert von einem Gruppe**

3) Consortium Blockchain-

The next type of blockchain is consortium blockchain that has both public and private components, except multiple organizations which will manage a single consortium blockchain network. To set these types of blockchain can initially be more complex but they can offer better security. The consortium blockchains are optimal for collaboration with multiple organizations.

In a consortium blockchain the consensus procedures are controlled by preset nodes. It has a validator node that validates initiates and receives transactions.

Member nodes can initiate or receive transactions.

A consortium blockchain consists of two types of users:-
They are:-

1. The users who can access the blockchain
2. The users who have control over the blockchain and decide who should have permissions to access the blockchain.

Use cases:-

1. Payment and Banking are two use cases of this type of blockchain. Different banks can band together and form a consortium, deciding which node will validate the transaction.
2. This type of blockchain is good for tracking food and medicine supply chain where different parties are involved.

Conclusion:-

The survey report of types of blockchain and its real use cases is completed.

Assignment No 5

Kavita Sahu
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Title:- Hyperledger

Date of completion:-

Objective:-

To support the development of blockchain based distributed ledgers.

Problem statement:-

Write a program to create a Business Network using Hyperledger.

Software and Hardware Requirements -

Theory-

Hyperledger is an open source project created to support the development of blockchain based distributed ledgers.

Hyperledger consists of collaborative effort to create the needed framework standard, tools and libraries to build blockchain and related applications.

Hyperledger acts as a hub for different

distributed ledger framework and libraries.

With this, a business could use one of Hyperledger's framework (for example) to improve the efficiency, performance and transaction in their business processes.

Hyperledger works by providing the needed infrastructure and standard for developing blockchain systems and applications.

Developers use Hyperledger Greenhol to develop business blockchain projects.

Hyperledger technology works using these layers:

- 1 A consensus layer
- 2 A smart contract layer
- 3 A communication layer

Conclusion -

Implemented a business network using Hyperledger.