

Experiment No.1
To demonstrate the various online tools available to create block, block chain and Wallet
Date of Performance:
Date of Submission:



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Department of Computer Engineering

Aim: To demonstrate the various online tools available to understand block, block chain and Wallet

Objective: To make use of various online tools to understand the concept of blockchain

Theory:

A blockchain is “a distributed database that maintains a continuously growing list of ordered records, called blocks.” These blocks “are linked using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data. A blockchain is a decentralized, distributed and public digital ledger that is used to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent blocks and the consensus of the network.”

While blockchain is still largely confined to use in recording and storing transactions for cryptocurrencies such as Bitcoin, proponents of blockchain technology are developing and testing other uses for blockchain, including these:

- **Blockchain for payment processing and money transfers.** Transactions processed over a blockchain could be settled within a matter of seconds and reduce (or eliminate) banking transfer fees.
- **Blockchain for monitoring of supply chains.** Using blockchain, businesses could pinpoint inefficiencies within their supply chains quickly, as well as locate items in real time and see how products perform from a quality-control perspective as they travel from manufacturers to retailers.
- **Blockchain for digital IDs.** Microsoft is experimenting with blockchain technology to help people control their digital identities, while also giving users control over who accesses that data.
- **Blockchain for data sharing.** Blockchain could act as an intermediary to securely store and move enterprise data among industries.
- **Blockchain for copyright and royalties protection.** Blockchain could be used to create a decentralized database that ensures artists maintain their music rights and provides transparent and real-time royalty distributions to musicians. Blockchain could also do the same for open source developers.
- **Blockchain for Internet of Things network management.** Blockchain could become a regulator of IoT networks to “identify devices connected to a wireless network, monitor the activity of those devices, and determine how trustworthy those devices are” and to “automatically assess the trustworthiness of new devices being added to the network, such as cars and smartphones.”



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- **Blockchain for healthcare.** Blockchain could also play an important role in healthcare: “Healthcare payers and providers are using blockchain to manage clinical trials data and electronic medical records while maintaining regulatory compliance.”

The blockchain is a chain of data blocks. Each block can be thought of as a page in a ledger. The individual blocks are composed of several components. Roughly these can be differentiated into the head of the block (block header) and his body (block body).

Block header

The head of the block is divided into six components:

- the version number of the software
- the hash of the previous block
- the root hash of the Merkle tree
- the time in seconds since 1970-01-01 T00: 00 UTC
- the goal of the current difficulty
- the nonce

Wallet

A blockchain wallet is a cryptocurrency wallet that allows users to manage different kinds of cryptocurrencies—for example, Bitcoin or Ethereum. A blockchain wallet helps someone exchange funds easily. Transactions are secure, as they are cryptographically signed. The wallet is accessible from web devices, including mobile ones, and the privacy and identity of the user are maintained. So a blockchain wallet provides all the features that are necessary for safe and secure transfers and exchanges of funds between different parties.

A blockchain wallet consists of:

1. Cryptocurrency (e.g., Bitcoin, Ether etc.)
2. Public key of the participants in the blockchain
3. Private key of the participant in the blockchain

Some of the example of wallets are MyEtherWallet, MetaMask, Bitcoin wallet etc.

Process:

Step 1. Visit the website

<https://guggero.github.io/blockchain-demo/#!/tokens>

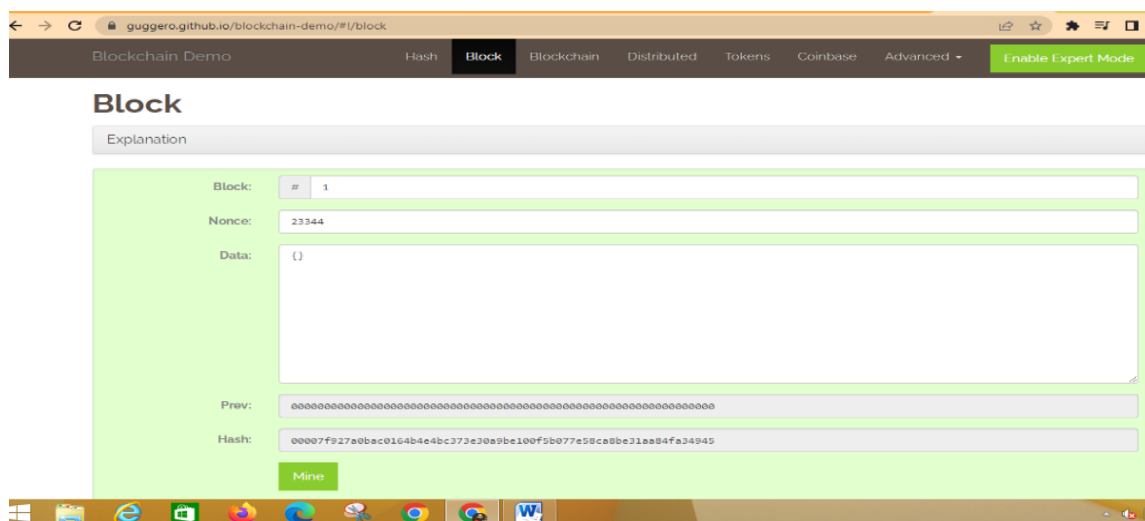


Fig.1.1 Block Demo

Step 2. Click on the block option tab to create a block with a particular information

Step 3. Click on the block chain option tab to create a block chain. For every block give certain input data and click on the mine tab to create a hash of the block

Step 4. Repeat step 3 for all the remaining blocks

Step 5. Click on the Distributed option tab to create distributed block chain

Step 6. Change the data field of a block on any Peer and then mine it to create a new block.

Step 7. Copy the nonce of the mined block and paste it into block (at the same level) in another peer. Also change the data field of this block as per data field. Do not click on the mine

Step 8. Repeat step 6-7 for every other blocks to form a distributed block chain.

To create a wallet in Blockchain.com

1. Go to Blockchain.com on your computer or smartphone and click on either Sign Up or Get Started.

2. You can also click on the Log In button then click on Sign up Now if you're returning to the site after a previous visit.

3. Each path will lead you right to the "Create Wallet" page. Once there, click on Create Wallet. Creating a wallet is the first step towards opening a Blockchain.com account.

[←](#)
[→](#)
[guggero.github.io/blockchain-demo/#/1/blockchain](#)

Blockchain Demo

Hash

Block

Blockchain

Distributed

Tokens

Coinbase

Advanced ▾

Enable Expert Mode

Blockchain

Explanation

Block: # 1

Nonce: 23344

Data: {}

Prev: 00000000000000000000000000000000

Hash: 00007f927a0bac0164b4e4bc3

Mine

Block: # 2

Nonce: 15208

Data: {}

Prev: 00007f927a0bac0164b4e4bc3

Hash: 0000a88fd3769bbfffd66a501

Mine

Block: # 3

Nonce: 24677

Data: {}

Prev: 0000a88fd3769bbfffd66a501

Hash: 00009d42ecc70a2b83c7ade1e

Mine

Block: # 4

Nonce: 48313

Data: {}

Prev: 00009d42ecc70a2b83c7ade1e

Hash: 0000858ab9e426fdd0995fe9e

Mine

Fig,1.2 Blockchain Demo

Fig.1.3 Distributed Blockchain Demo

4. Enter your email address in the space provided. Make sure that it's a working email address that you currently have access to. You'll need it to verify your email address.

5. Enter a strong password, and confirm the password. You can ask your browser to suggest a strong password and to save it for you. Select your country if it's not already selected automatically. Review the information in the consent section and check the box when you're done. Click Create Wallet.



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Creating Wallet using 'MyEtherWallet.com'

Step 1. Go to website [MyEtherWallet | MEW](https://myetherwallet.com/)

Step 2. Click on the option 'Create A New Wallet'

Step 3. Create Wallet using Software or any suitable method

Step 4. If wallet is to be created using Software, select 'Mnemonic Phrase' option to create wallet

Step 5. Note down all the Mnemonic Phrase and then click on 'I wrote Down' Button

Step 6. Verify the Mnemonic Phrase as asked on the web page

Step 7. Once verification is successful, the wallet gets created.

Step 8. The Wallet can be accessed through MyEtherWallet.com

Output Screenshort:

Block

Explanation

Block:	# 1
Nonce:	6988
Data:	{19 Dhanashree Raut }
Prev:	00
Hash:	0000e05daf038811515e88a4c5c70b57c9d3d2d4050e43bfaa9aa607beed39b1
	<button>Mine</button>

Distributed Blockchain

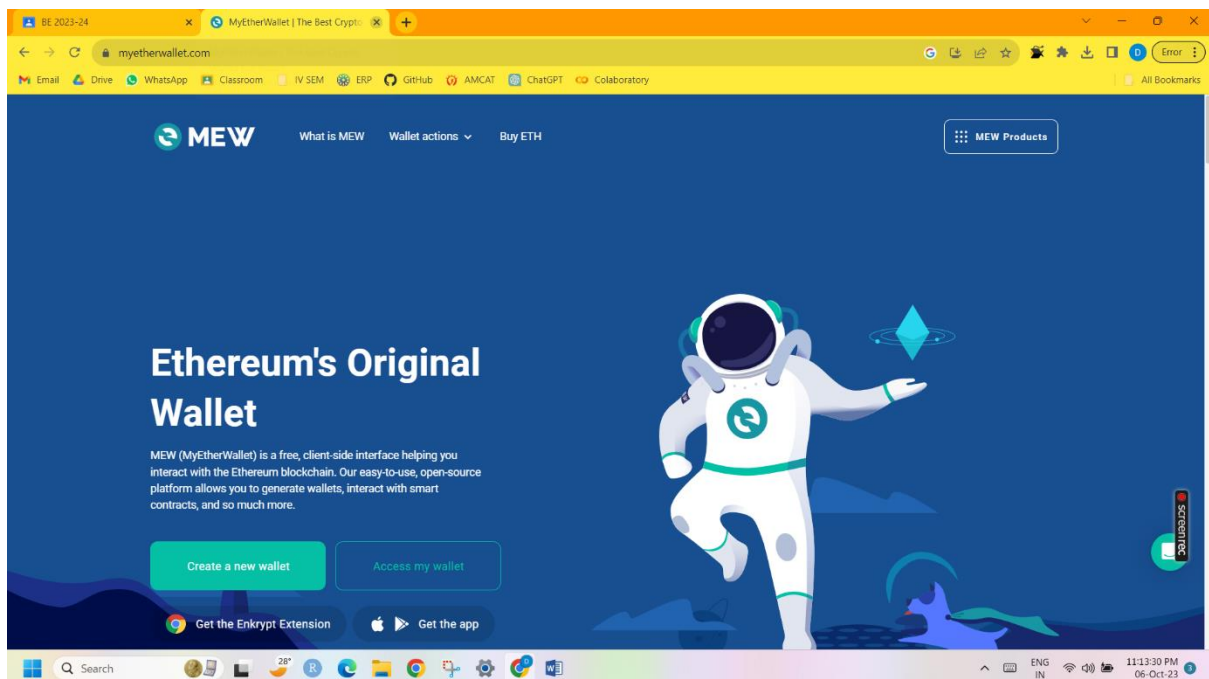
Peer A

[illegible]

Peer B

The diagram illustrates a sequence of five blocks in a chain. Each block is represented by a light green rectangle with a white header and a white body. The header contains the block number (1 to 5) and the word 'Block:'. The body contains the word 'Nonce:' followed by a value and the word 'Data:' followed by an empty box. The nonces are 23344, 15288, 24677, 48313, and 41. The data boxes are empty.

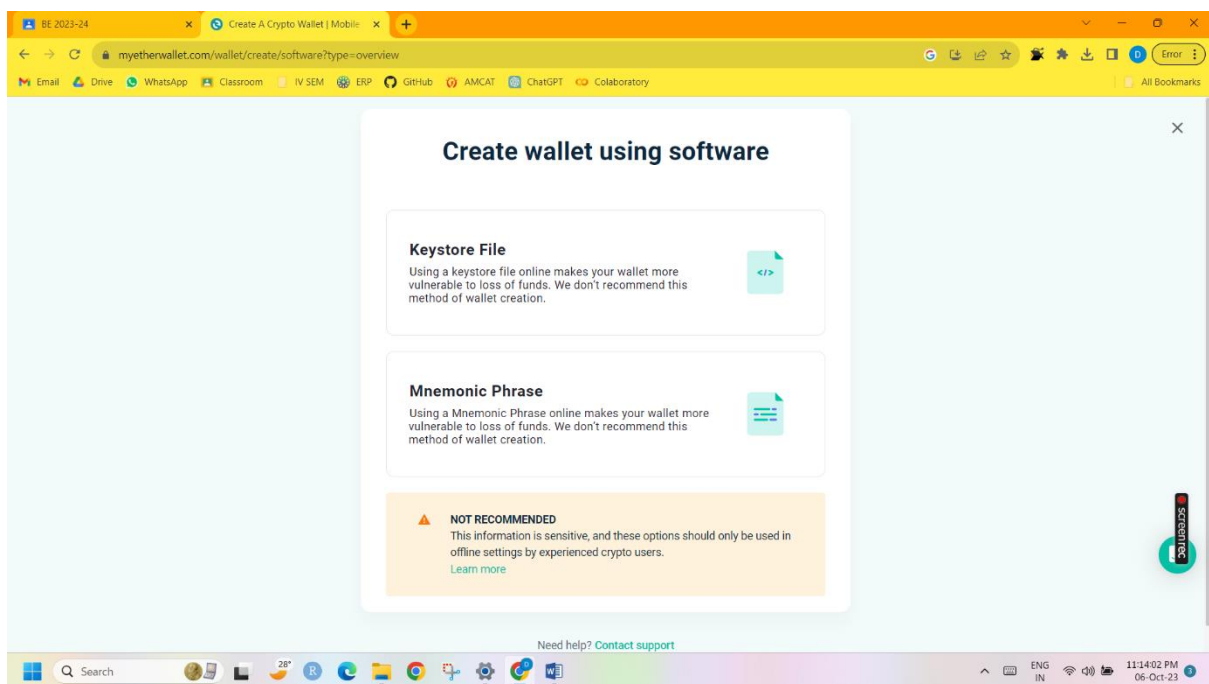
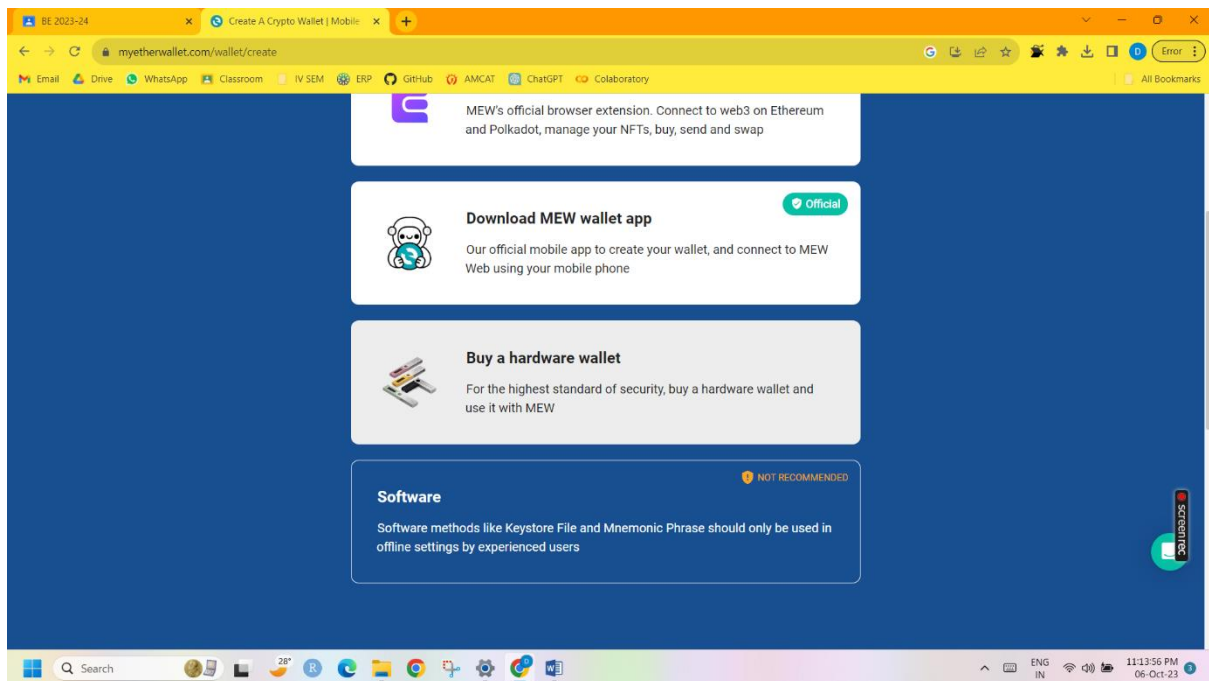
Block:	Nonce:	Data:
1	23344	
2	15288	
3	24677	
4	48313	
5	41	





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myetherwallet.com/wallet/create/software?type=mnemonic

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Create Wallet with Mnemonic Phrase

1 STEP 1. Write down the words STEP 2. Verification STEP 3. Well done

STEP 1.
Write down these words

Update 12 words

1. vital	2. animal	3. electric	4. crumble
5. crouch	6. couple	7. clean	8. own
9. display	10. eye	11. twin	12. present

Add Extra Word

Extra word

28°

ENG IN 11:14:15 PM 06-Oct-23

BE 2023-24 Create A Crypto Wallet | Mobile

myetherwallet.com/wallet/create/software?type=mnemonic

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Create Wallet with Mnemonic Phrase

1 STEP 1. Write down the words STEP 2. Verification STEP 3. Well done

STEP 2.
Verification

Please select correct words based on their numbers.

2.	<input checked="" type="radio"/> pass	<input type="radio"/> animal	<input type="radio"/> pass
5.	<input checked="" type="radio"/> noise	<input type="radio"/> crouch	<input type="radio"/> agent
10.	<input checked="" type="radio"/> project	<input type="radio"/> illegal	<input type="radio"/> eye

Back Verify

NOT RECOMMENDED

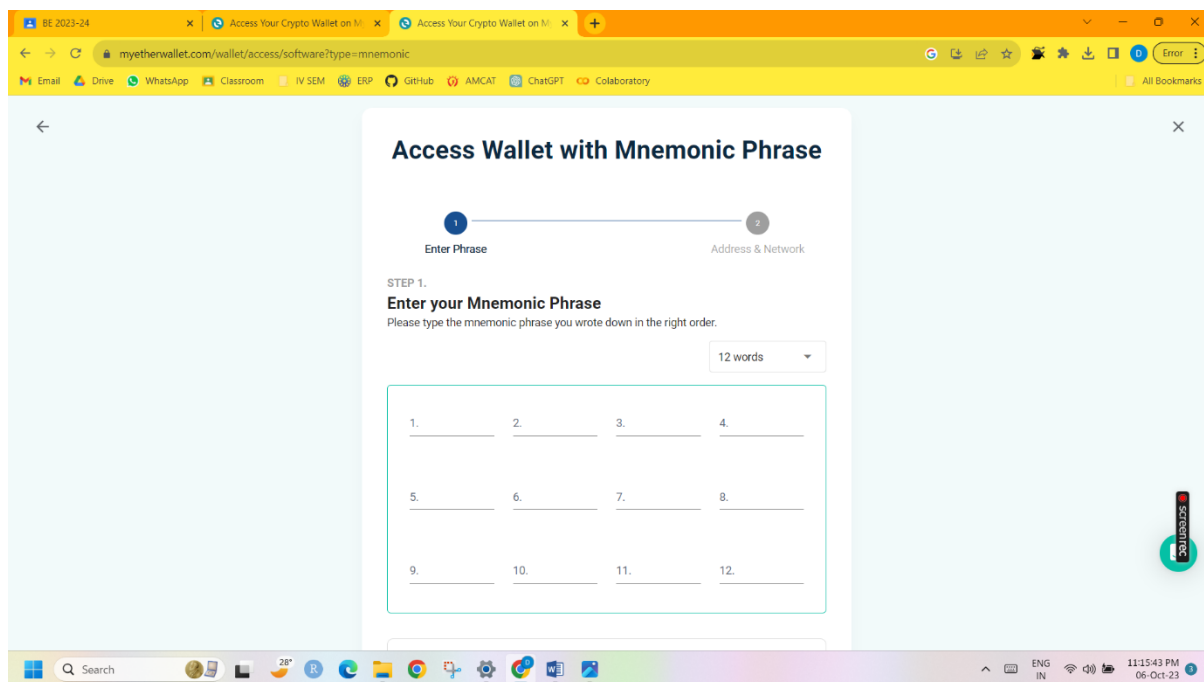
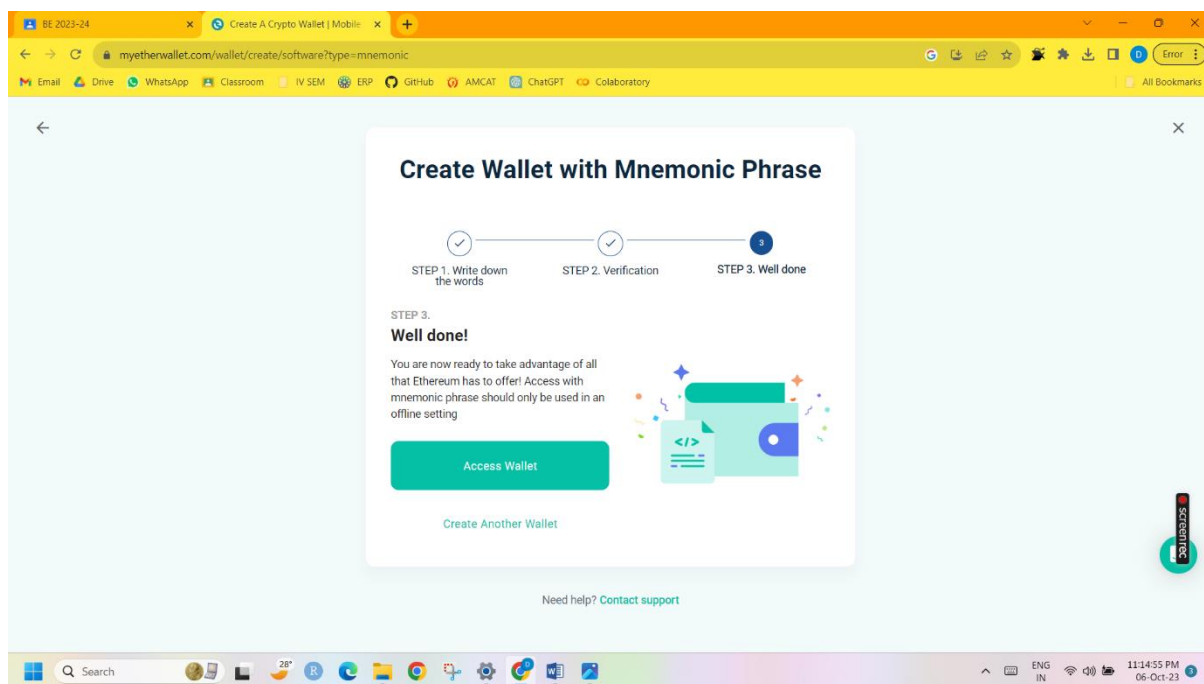
28°

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myetherwallet.com/wallet/access/software?type=mnemonic

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Access Wallet with Mnemonic Phrase

1 Enter Phrase 2 Address & Network

STEP 1.

Enter your Mnemonic Phrase

Please type the mnemonic phrase you wrote down in the right order.

12 words

1. vital	2. animal	3. electric	4. crumble
5. crouch	6. copule	7. clean	8. own
9. display	10. eye	11. twin	12. present

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myetherwallet.com/wallet/access/software?type=mnemonic

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Access Wallet with Mnemonic Phrase

1 Enter Phrase 2 Address & Network

STEP 2.

Select Address and Network

Ethereum M/44'/60'/0'/0

Address	
ADDRESS	ETH BALANCE
<input checked="" type="radio"/> 0 0xa992b33a8eb2a29d310...3d12	0 ETH
<input type="radio"/> 1 0xe8f286128a5cb7b99d3...0bf4	0 ETH
<input type="radio"/> 2 0xe78ebc2485300cbe7b4...af46	0 ETH
<input type="radio"/> 3 0xbd6c796e380c18e941a...0bc0	0 ETH
<input type="radio"/> 4 0x56d419898bcf36d7827...d659	0 ETH

Previous Next

Network

To access my wallet, I accept Terms

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Conclusion:

We have successfully explored various tools for gaining insights into blockchain technology and its practical applications. This included an educational blockchain demo, which simplifies complex concepts, likely focusing on token functionalities. Additionally, we introduced MyEtherWallet (MEW), a valuable tool for securely managing Ethereum-based assets. These resources collectively contribute to a comprehensive understanding of blockchain, tokens, and their real-world significance. However, it's essential to keep up with the ever-evolving blockchain landscape for the most up-to-date knowledge.