Batch: BCT_1 Roll No.: 1911020

Experiment No. 1

Title: Block chain demo and Block explorer – Bitcoin and Ethereum and Test Networks

Objective: To understand the important concepts used in blockchain and explore and analyse blocks, structure and statistics of existing blockchain implementations such as Bitcoin and Ethereum.

Expected Outcome of Experiment:

CO	Outcome
CO1	Build your own Blockchain businesses with acquired knowledge.

Books/ Journals/ Websites referred:

1) https://www.sciencedirect.com/topics/engineering/blockchain
2) https://www.investopedia.com/terms/b/blockchain.asp
3) https://www.euromoney.com/learning/blockchain-explained/what-is-blockchain
4) https://www.geeksforgeeks.org/features-of-blockchain/
5) https://www.geeksforgeeks.org/advantages-and-disadvantages-of-blockchain/

Abstract:-

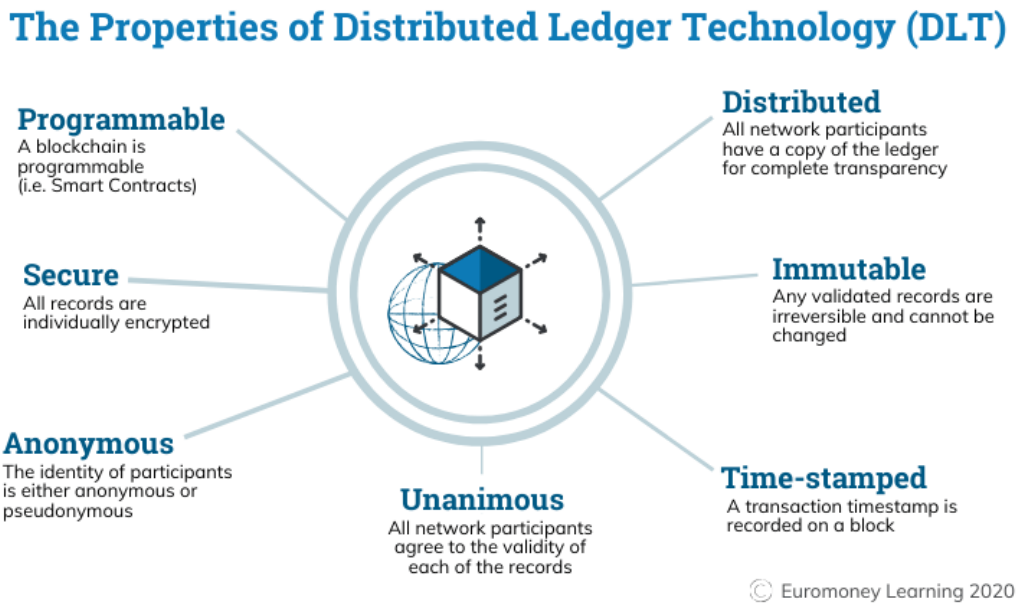
Blockchain is a technology that is developed using a combination of various techniques such as mathematics, algorithms, cryptography, economic models, and so on. Blockchain is a public ledger of all cryptocurrency transactions that are digitized and decentralized. All the transactions of cryptocurrencies are stored in chronological order to help users in tracking the transactions without maintaining any central record of the transactions. Application prospects of blockchain are promising and have been delivering the result since its inception. Blockchain technology has evolved from initial cryptocurrency to new age smart contracts and has been implemented and applied in many fields. A blockchain consists of growing list of records, called blocks, that are securely linked together using cryptography. Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data.

Related Theory: -

Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system.

A blockchain is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain. Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger. The decentralised database managed by multiple participants is known as Distributed Ledger Technology (DLT).

Blockchain is a type of DLT in which transactions are recorded with an immutable cryptographic signature called a hash.



This means if one block in one chain was changed, it would be immediately apparent it had been tampered with. If hackers wanted to corrupt a blockchain system, they would have to change every block in the chain, across all of the distributed versions of the chain. Blockchains such as Bitcoin and Ethereum are constantly and continually growing as blocks are being added to the chain, which significantly adds to the security of the ledger.

There have been many attempts to create digital money in the past, but they have always failed. The prevailing issue is trust. If someone creates a new currency called the X dollar, how can we trust that they won't give themselves a million X dollars, or

steal your X dollars for themselves? Bitcoin was designed to solve this problem by using a specific type of database called a blockchain. Most normal databases, such as an SQL database, have someone in charge who can change the entries (e.g. giving themselves a million X dollars). Blockchain is different because nobody is in charge; it's run by the people who use it. What's more, bitcoins can't be faked, hacked or double spent – so people that own this money can trust that it has some value.

Features of Blockchain:

1. Immutable

Immutability means that the blockchain is a permanent and unalterable network. Blockchain technology functions through a collection of nodes.

- Every node in the network has a copy of the digital ledger. To add a transaction every node checks the validity of the transaction and if the majority of the nodes think that it is a valid transaction then it is added to the network. This means that without the approval of a majority of nodes no one can add any transaction blocks to the ledger.
- Any validated records are irreversible and cannot be changed. This means that any user on the network won't be able to edit, change or delete it.

2. Distributed

All network participants have a copy of the ledger for complete transparency. A public ledger will provide complete information about all the participants on the network and transactions. The distributed computational power across the computers ensures a better outcome. Distributed ledger is one of the important features of blockchains due to many reasons like:

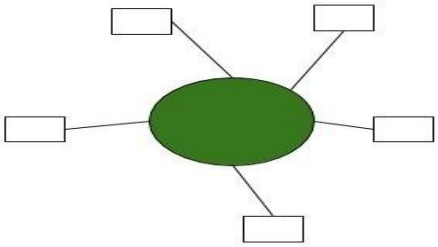
- In distributed ledger tracking what's happening in the ledger is easy as changes propagate really fast in a distributed ledger.
- Every node on the blockchain network must maintain the ledger and participate in the validation.
- Any change in the ledger will be updated in seconds or minutes and due to no involvement of intermediaries in the blockchain, the validation for the change will be done quickly.
- If a user wants to add a new block then other participating nodes have to verify the transaction. For a new block to be added to the blockchain network it must be approved by a majority of the nodes on the network.

- In a blockchain network, no node will get any sort of special treatment or favors from the network. Everyone will have to follow the standard procedure to add a new block to the network.

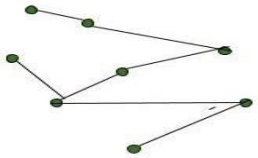
3. Decentralized

The blockchain network is decentralized which means that there is no central governing authority that will responsible for all the decisions. Rather a group of nodes makes and maintain the network. Each and every node in the blockchain network has the same copy of the ledger. Decentralization property offers many advantages in the blockchain network:

- As a blockchain network does not depend on human calculations it is fully organized and fault-tolerant.
- The blockchain network is less prone to failure due to the decentralized nature of the network. Attacking the system is more expensive for the hackers hence it is less likely to fail.
- There is no third-party involved hence no added risk in the system.
- The decentralized nature of blockchain facilitates creating a transparent profile for every participant on the network. Thus, every change is traceable, and more concreate.
- Users now have control over their properties and they don't have to rely on third-party to maintain and manage their assets.



Centralised Network



Decentralised network

4. Secure

All the records in the blockchain are individually encrypted. Using encryption adds another layer of security to the entire process on the blockchain network. Since there is no central authority, it does not mean that one can simply add, update or delete data on the network.

Every information on the blockchain is hashed cryptographically which means that every piece of data has a unique identity on the network. All the blocks contain a unique hash of their own and the hash of the previous block. Due to this property, the

blocks are cryptographically linked with each other. Any attempt to modify the data means to change all the hash IDs which is quite impossible.

5. Consensus

Every blockchain has a consensus to help the network to make quick and unbiased decisions. Consensus is a decision-making algorithm for the group of nodes active on the network to reach an agreement quickly and faster and for the smooth functioning of the system. Nodes might not trust each other but they can trust the algorithm that runs at the core of the network to make decisions. There are many consensus algorithms available each with its pros and cons. Every blockchain must have a consensus algorithm otherwise it will lose its value.

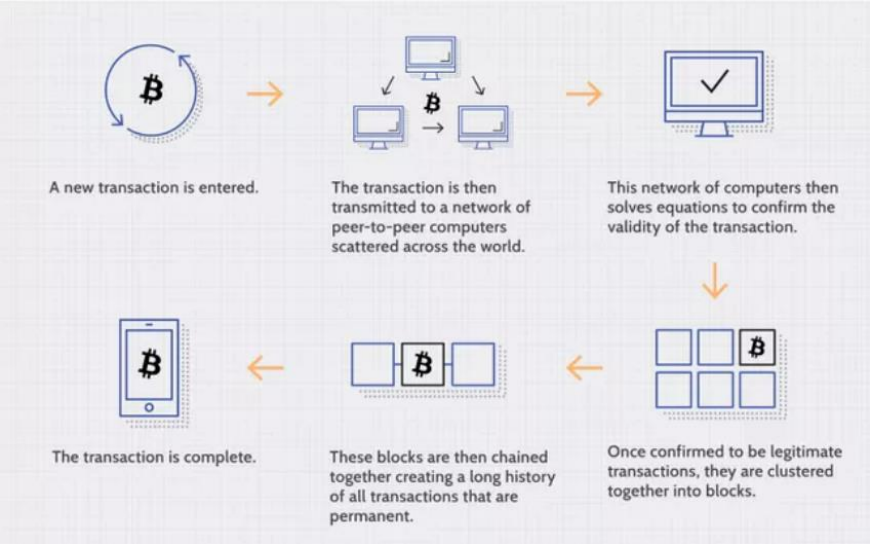
6. Unanimous

All the network participants agree to the validity of the records before they can be added to the network. When a node wants to add a block to the network then it must get majority voting otherwise the block cannot be added to the network. A node cannot simply add, update, or delete information from the network. Every record is updated simultaneously and the updates propagate quickly in the network. Thus it is not possible to make any change without consent from the majority of nodes in the network.

7. Faster Settlement

Traditional banking systems are prone to many reasons for fallout like taking days to process a transaction after finalizing all settlements, which can be corrupted easily. On the other hand, blockchain offers a faster settlement compared to traditional banking systems. This blockchain feature helps make life easier.

How Does Blockchain Technology Work?



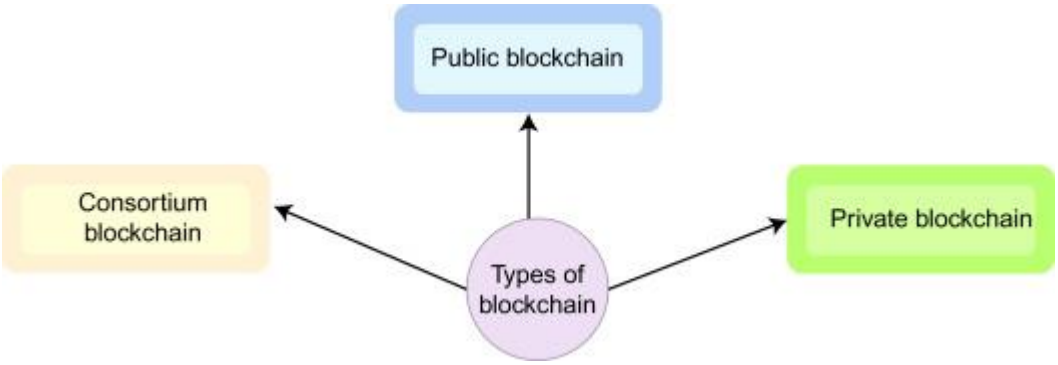
One of Blockchain technology's cardinal features is the way it confirms and authorizes transactions. For example, if two individuals wish to perform a transaction with a private and public key, respectively, the first person party would attach the transaction information to the public key of the second party. This total information is gathered together into a block.

The block contains a digital signature, a timestamp, and other important, relevant information. It should be noted that the block doesn't include the identities of the individuals involved in the transaction. This block is then transmitted across all of the network's nodes, and when the right individual uses his private key and matches it with the block, the transaction gets completed successfully.

The digital signature is merged with the peer-to-peer network; a large number of individuals who act as authorities use the digital signature in order to reach a consensus on transactions, among other issues. When they authorize a deal, it is certified by a mathematical verification, which results in a successful secured transaction between the two network-connected parties. So, to sum it up, Blockchain users employ cryptography keys to perform different types of digital interactions over the peer-to-peer network.

Types of Blockchain:

Blockchain is classified into three major categories :



I. **Public blockchain**: All records in this blockchain system are broadcasted and all the members and everyone is involved in the process of confirming and validating the transactions.

II. **Private blockchain**: This is also referred to as a centralized network, as the complete control is under one organization and only the members of the organization are involved in the process of concluding to consensus

III. **Consortium blockchain**: This blockchain system is monitored and regulated by several bodies and is moderately decentralized as few pre-selected group of nodes would be selected to contribute to the decision-making process.

The comparison among different blockchain system:

• **Consensus determination**: Each node in public blockchain participates in the agreement process. Whereas, for validation of the block in consortium blockchain, only a few nodes are involved. Private blockchain system is under control by a single organization which also responsible for the validation.

• **Visibility:** In a public blockchain, transactions are transparent and available to the nodes, whereas the control is under one organization in the case of a private blockchain or a consortium blockchain.

• **Flexibility:** In public blockchains, the transactions are validated and checked by all the nodes in the public and it is not possible to tamper transactions. On the contrary, agreements in private or consortium blockchain can be meddled easily as it involves only a set of people.

• **Efficiency:** With limited number of nodes in consortium and private blockchain, the transactions are efficient as it is not propagated throughout the network. In public chain network, a large amount of time is required to deliver the transactions and blocks among the nodes. This results in limited transaction throughput and high latency.

• **Centralized:** Consortium blockchain involves partial centralization, public blockchain is decentralized, and private blockchain is completely centralized as the control is under a single unit.

• **Consensus Process:** Anyone can actively participate in the consensus process associated with public blockchain. Private and consortium blockchain nodes both being decentralized require permission from the regulatory organization.

Advantages of Blockchain Technology:

1. Open: One of the major advantages of blockchain technology is that it is accessible to all means anyone can become a participant in the contribution to blockchain technology, one does not require any permission from anybody to join the distributed network.

2. Verifiable: Blockchain technology is used to store information in a decentralized manner so everyone can verify the correctness of the information by using zero-knowledge proof through which one party proves the correctness of data to another party without revealing anything about data.

3. Permanent: Records or information which is stored using blockchain technology is permanent means one needs not worry about losing the data because duplicate copies are stored at each local node as it is a decentralized network that has a number of trustworthy nodes.

4. Free from Censorship: Blockchain technology is considered free from censorship as it does not have control of any single party rather it has the concept of trustworthy nodes for validation and consensus protocols that approve transactions by using smart contracts.

5. Tighter Security: Blockchain uses hashing techniques to store each transaction on a block that is connected to each other so it has tighter security. It uses SHA 256 hashing technique for storing transactions.

6. Immutability: Data cannot be tampered with in blockchain technology due to its decentralized structure so any change will be reflected in all the nodes so one cannot do fraud here, hence it can be claimed that transactions are tamper-proof.

7. Transparency: It makes histories of transactions transparent everywhere all the nodes in the network have a copy of the transaction in the network. If any changes occur in the transaction it is visible to the other nodes.

8. Efficiency: Blockchain removes any third-party intervention between transactions and removes the mistake making the system efficient and faster. Settlement is made easier and smooth.

9. Cost Reduction: As blockchain needs no third man it reduces the cost for the businesses and gives trust to the other partner.

Disadvantages of Blockchain Technology:

1. Scalability: It is one of the biggest drawbacks of blockchain technology as it cannot be scaled due to the fixed size of the block for storing information. The block size is 1 MB due to which it can hold only a couple of transactions on a single block.

2. Immaturity: Blockchain is only a couple-year-old technology so people do not have much confidence in it, they are not ready to invest in it yet several applications of blockchain are doing great in different industries but still it needs to win the confidence of even more people to be recognized for its complete utilization.

3. Energy Consuming: For verifying any transaction a lot of energy is used so it becomes a problem according to the survey it is considered that 0.3 percent of the world's electricity had been used by 2018 in the verification of transactions done using blockchain technology.

4. Time-Consuming: To add the next block in the chain miners need to compute nonce values many times so this is a time-consuming process and needs to be speed up to be used for industrial purposes.
5. Legal Formalities: In some countries, the use of blockchain technology applications is banned like cryptocurrency due to some environmental issues they are not promoting to use blockchain technology in the commercial sector.
6. Storage: Blockchain databases are stored on all the nodes of the network creates an issue with the storage, increasing number of transactions will require more storage.
7. Regulations: Blockchain faces challenges with some financial institution. Other aspects of technology will be required in order to adopt blockchain in wider aspect.

Applications:

- **Financial Services:** Bitcoin is the first and most prominent application of block chain technology as an e-payment system. Bitcoin was created in January 2009 by Satoshi Nakamoto as a digital currency independent of any central authority, transferable electronically, and with very low transaction costs. A stable and widely accepted crypto currency stands to revolutionize e-commerce, money transfers, and even letters of credit. Cryptocurrency poses a challenge to traditional banking.
- **Retail and Services:** It can be used in retail and services. Any merchant who accepts digital money as payment can exchange their goods and services. Persons and companies involved in a supply value chain can use private block chains to reduce transaction costs in their business relationships and make payments and transfers along the chain as well as pass information in a very transparent manner.
- **Digital Identity:** Identity theft is emerging as a bane of the digital age. Currently taking precautions against identify theft and attempting to restore identity after it has been compromised is an $18.5 billion annual business and growing yearly according to Distil Networks. Using blockchain technologies would make the tracking and managing of digital identities both secure, efficient and low-cost.
- **Digital Voting:** Two of the biggest hurdles to electronic poll place machines and online voting is the fear that security can be breached and that votes can be manipulated. Using blockchain, a voter could verify if his or her vote was successfully transited and remain anonymous and because of the distributed ledger technology it would not be possible to alter a vote once cased.

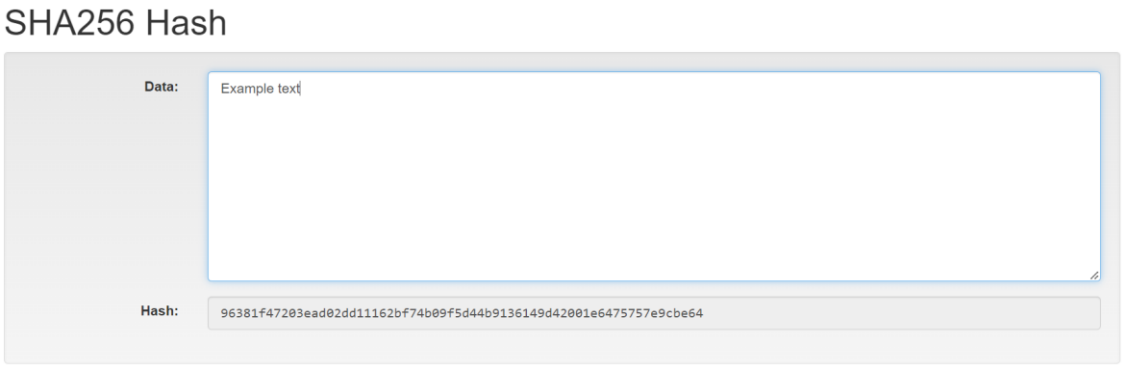
Implementation Details:

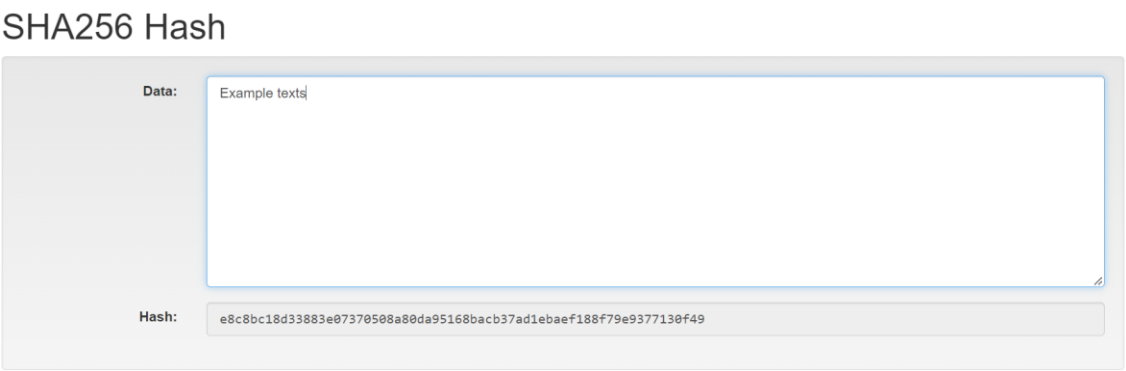
1. Enlist all the Steps followed and various options explored

Blockchain demo 1 : https://andersbrownworth.com/blockchain

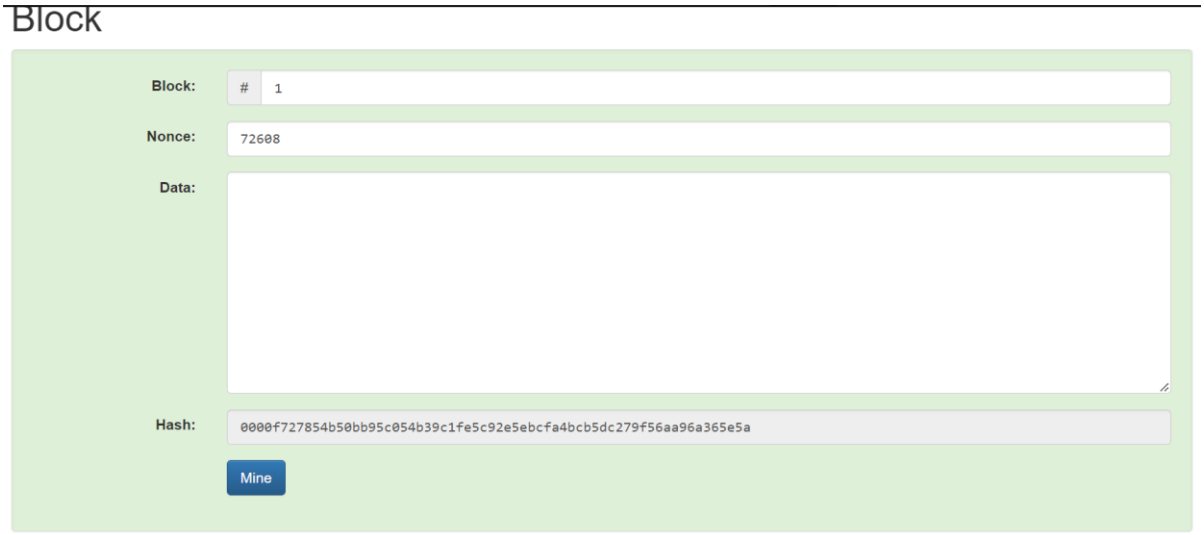
- Hashing is a fundamental concept used to build blockchains to provide immutability and integrity of blocks and the transactions they hold. A hash function is a mathematical function that converts a numerical input value into another compressed numerical value. The input to the hash function is of arbitrary length but output is always of fixed length. Values returned by a hash function are called message digest or simply hash values. Common hash functions include SHA-256, SHA-512, SHA-1etc.

- Hash of two strings is different and the length of input string may be arbitrary. As we can see by comparing the two images.

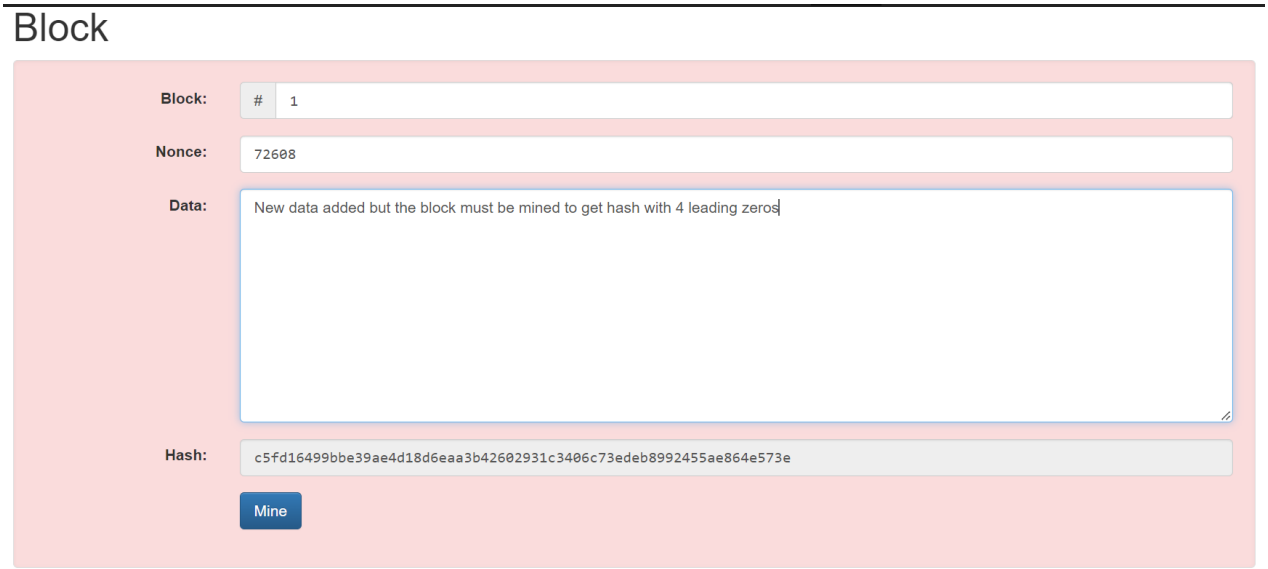




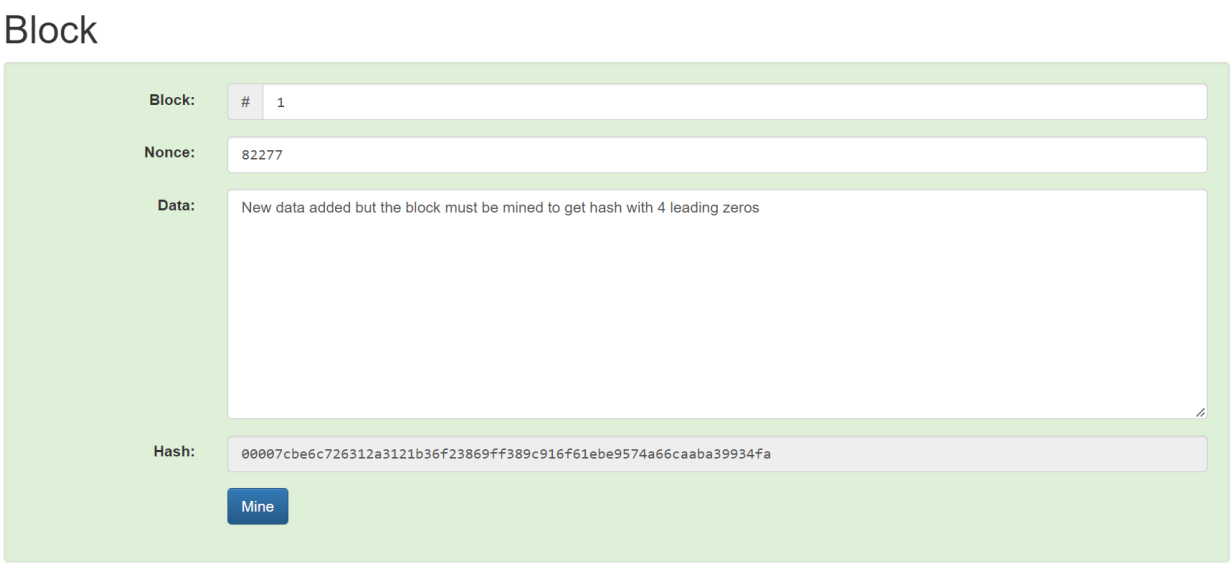
- Blocks must be mined before they are added to the blockchain. For this a complex mathematical puzzle is required to be solved. The puzzle in the demo is to find 4 leading zeros in the hash of the data and nonce by adjusting the nonce.



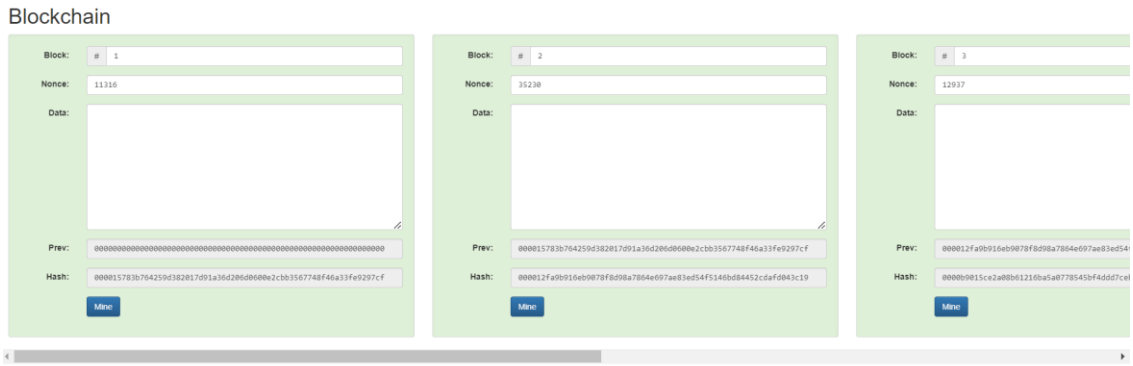
- If any fields are changed the hash changes which does not satisfy the proof of work puzzle.



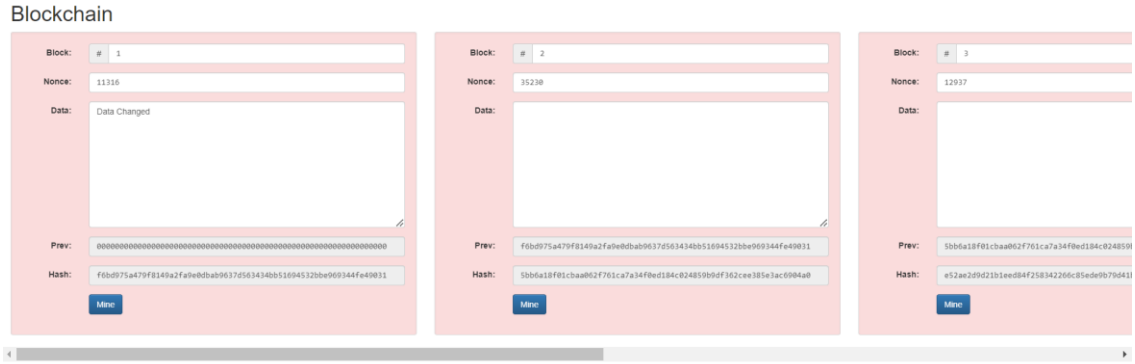
- The block needs to be mined to get corresponding nonce that solves the pow puzzle.



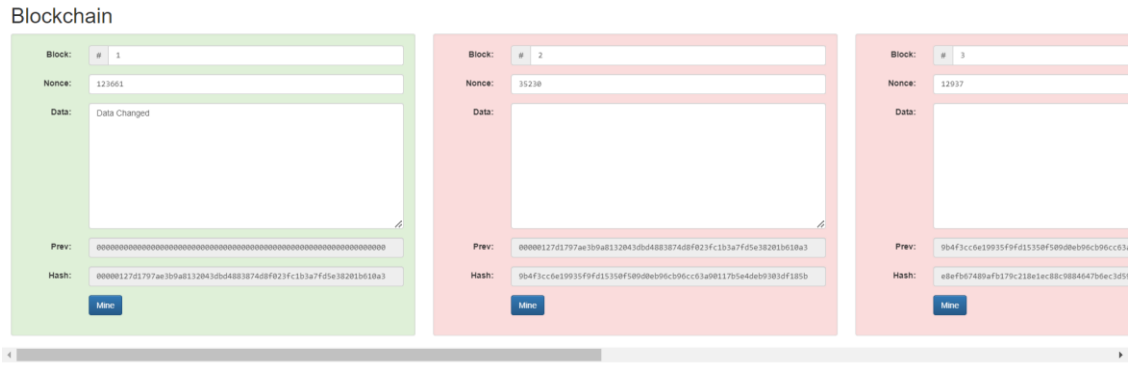
- Blockchain is the collection of blocks which are linked together like a linked list with the next block havbing the hash of the previous block therby forming a chain.



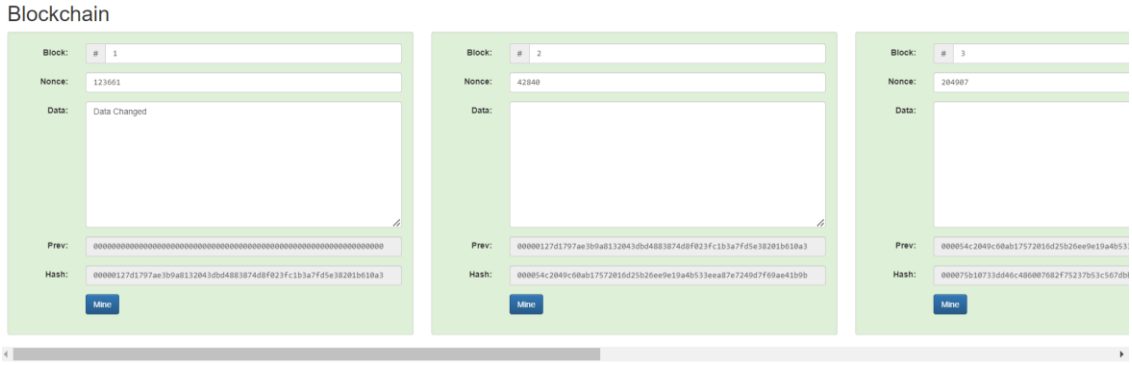
- If data is changed in any block then all blocks following it would be incorrect including itself and they would need to mined to achieve correctness.



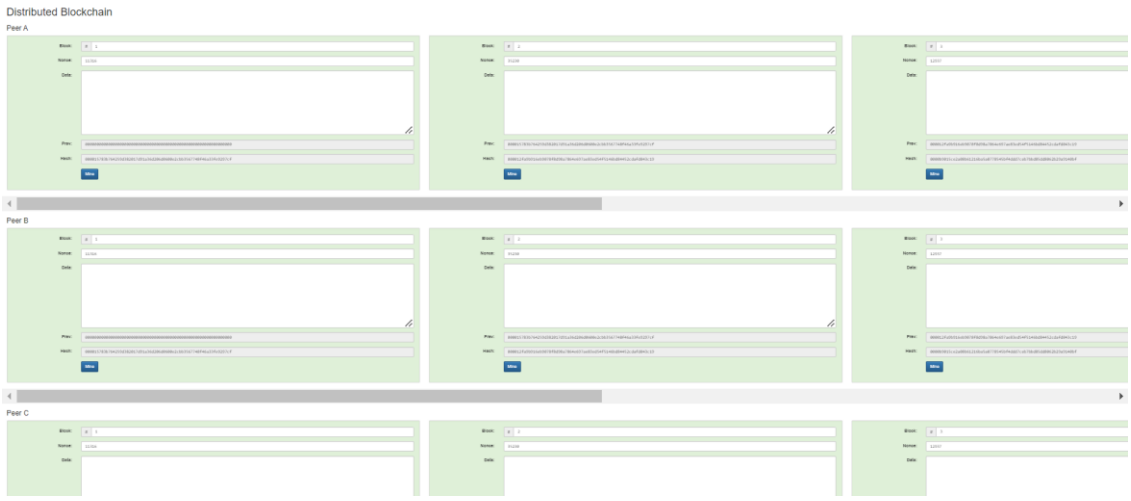
- After mining block 1:



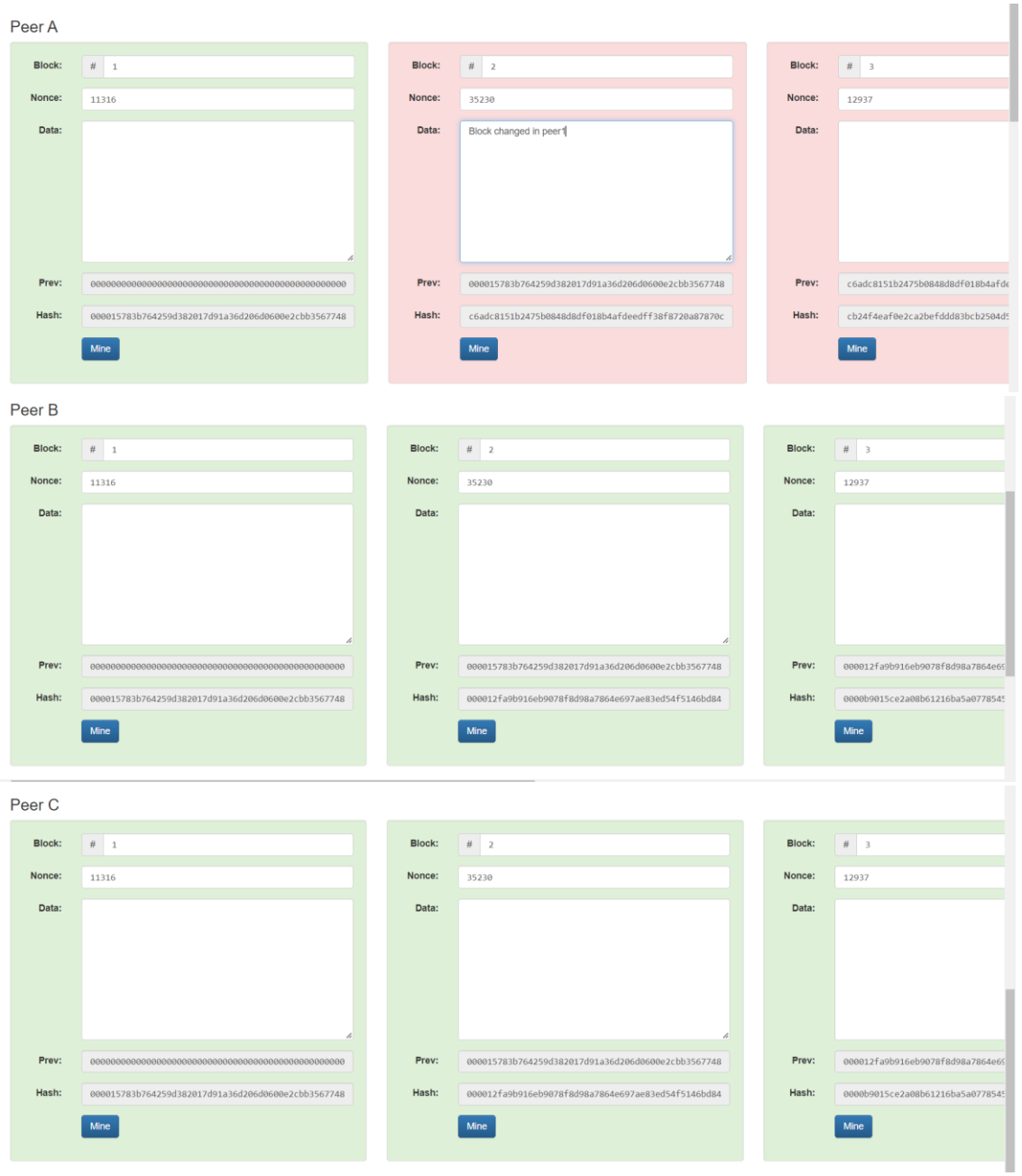
- After mining all blocks following block 1



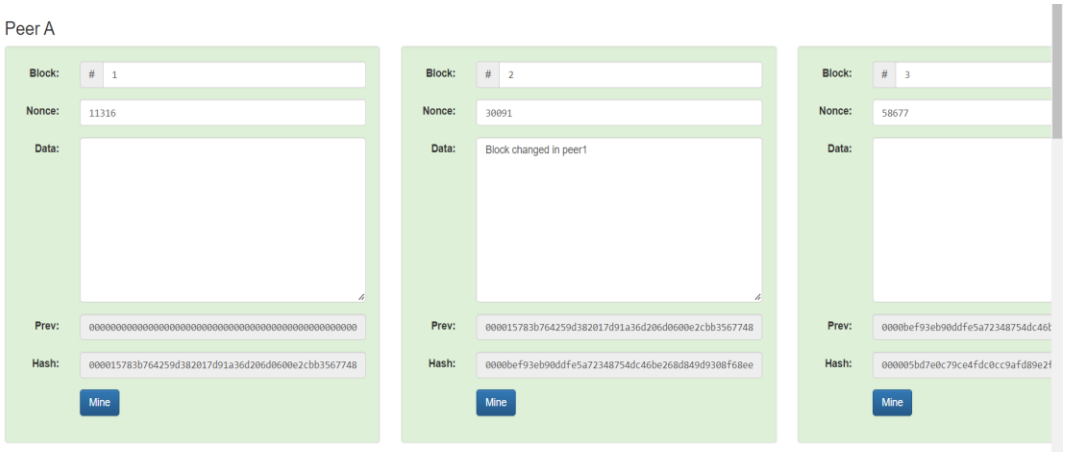
- Blockchain is a distributed ledger which means it is decentralized and distributed.



- All peers have the complete blockchain on their systems and the validity of their blockchain is made by consensus of more than 51% of the nodes present in the network. Changes in one peer don't affect the others.

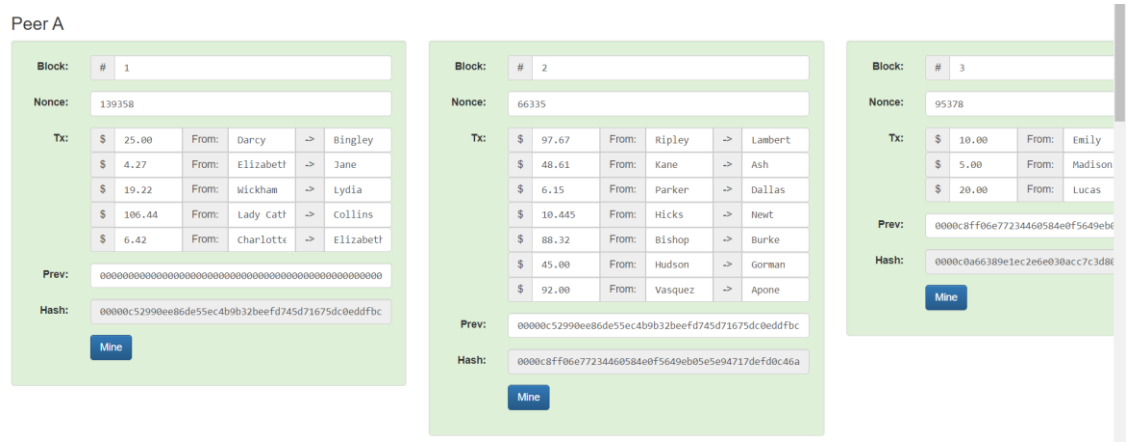


- We make Peer A valid again by mining blocks in it.

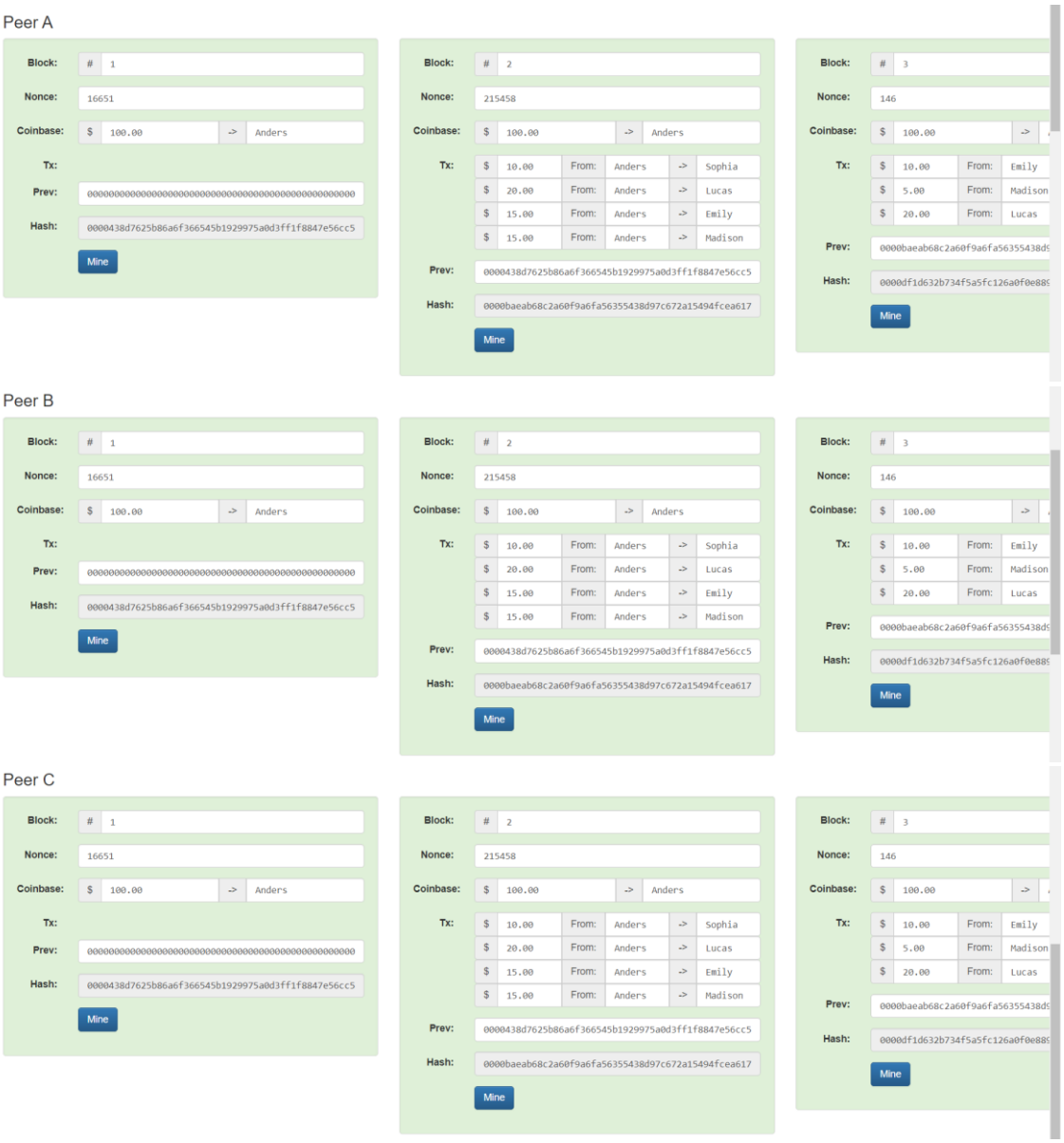


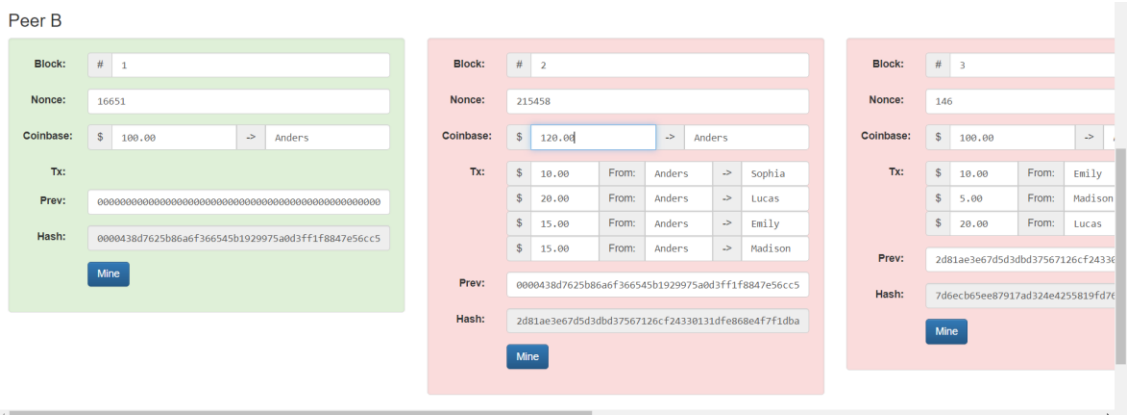
- Major application of blockchain is in cryptocurrencies for which transactions need to be stored on the chain.

- To make peer A blockchain valid all the invalid blocks has to be mined again.

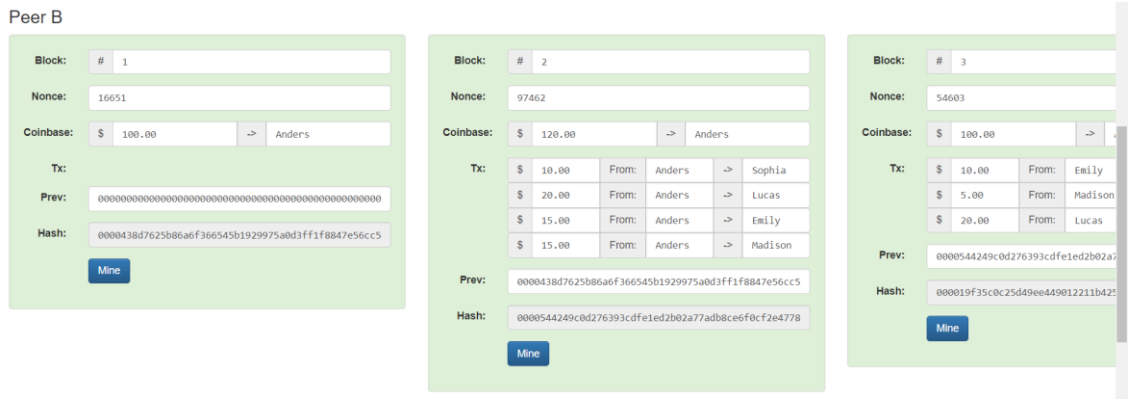


- A coinbase transaction is the first transaction in a block. It is a unique type of bitcoin transaction that can be created by a miner. The miners use it to collect the block reward for their work and any other transaction fees collected by the miner are also sent in this transaction.



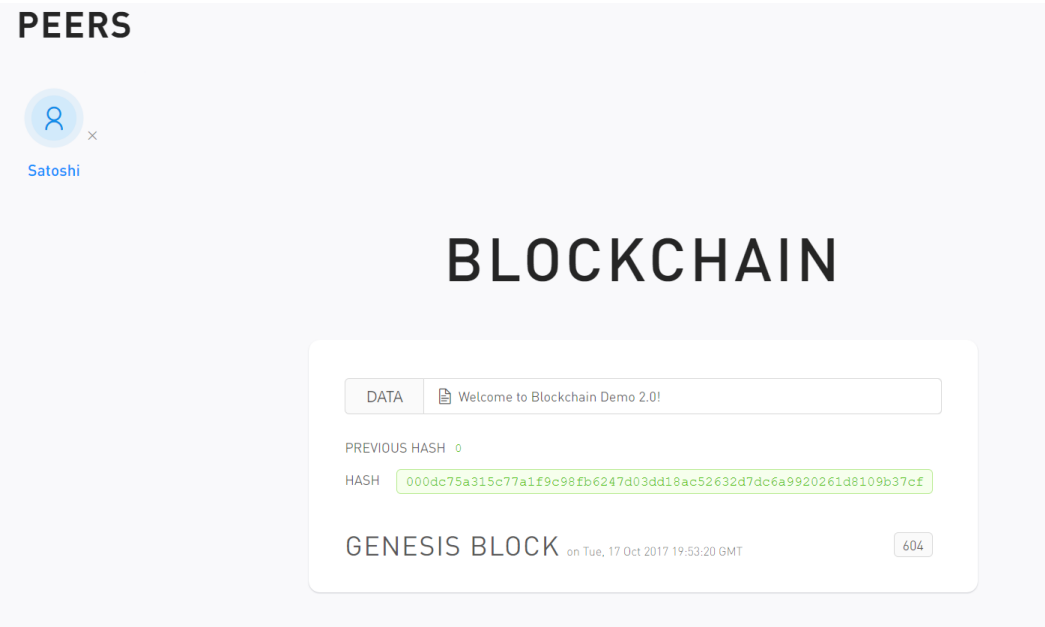


- To make peer B blockchain valid all the invalid blocks has to be mined again

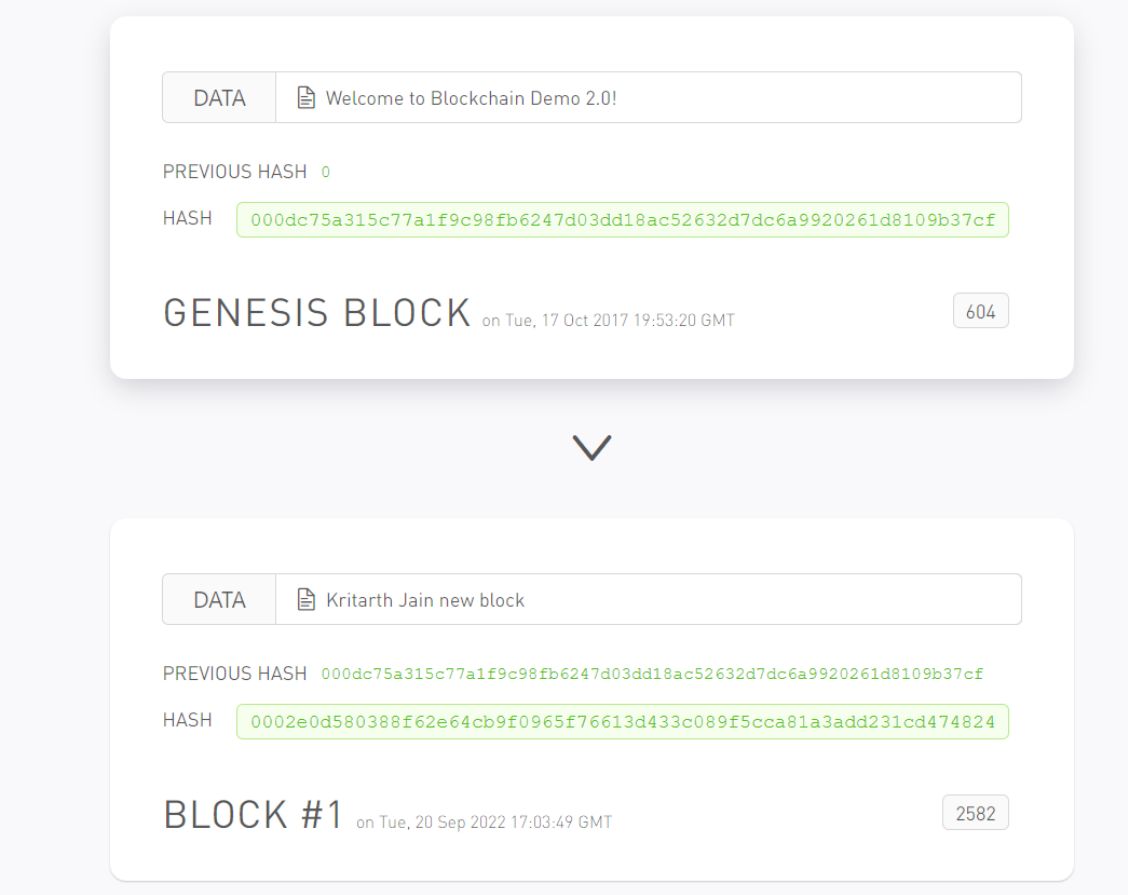


Blockchain demo2: https://blockchaindemo.io/

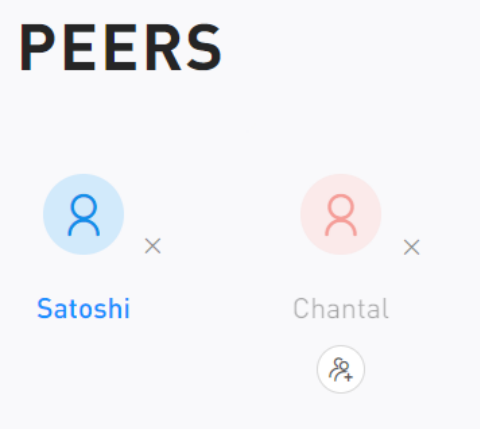
- In the previous demo the peer-to-peer functionality of blockchain was not demonstrated which is an important feature of blockchains. The first block in the blockchain is called the genesis block.

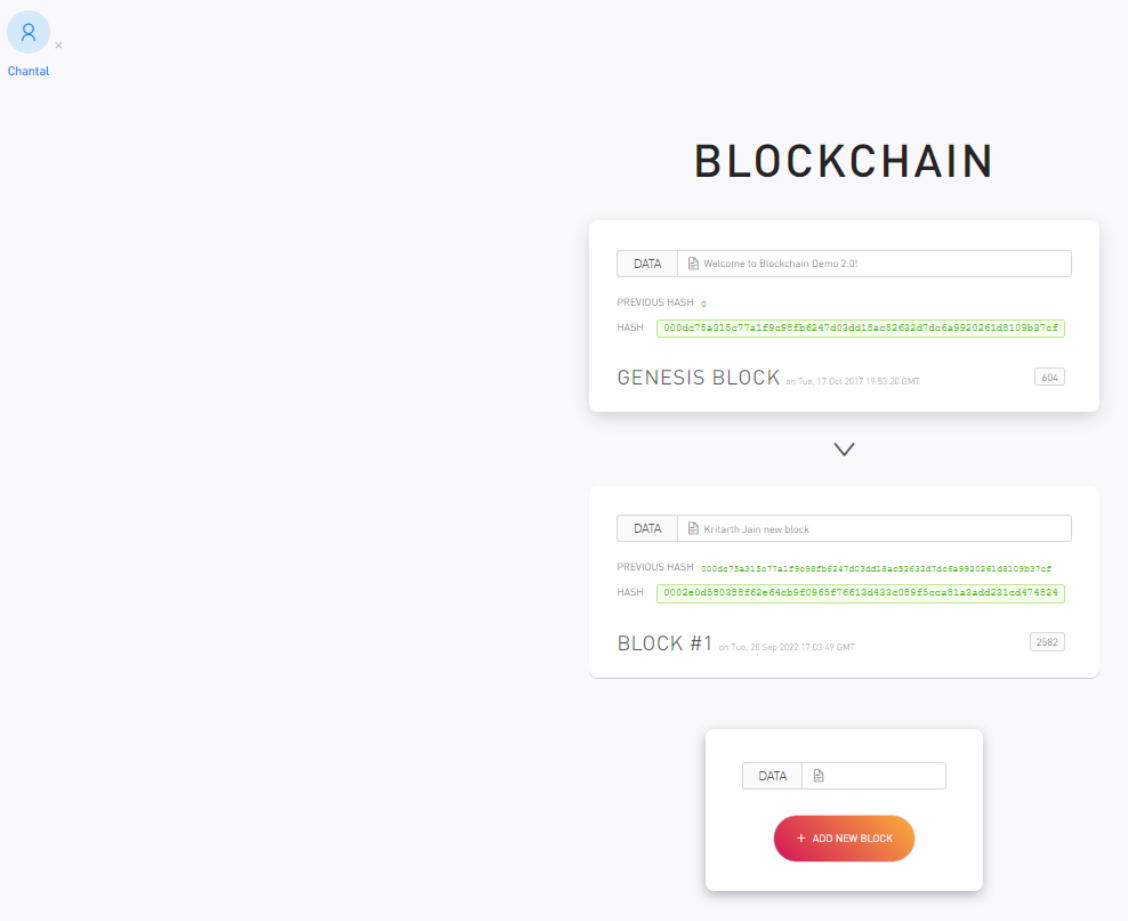


- Currently only the genesis block is present with only one peer (Satoshi) . We can add a new block to the blockchain.

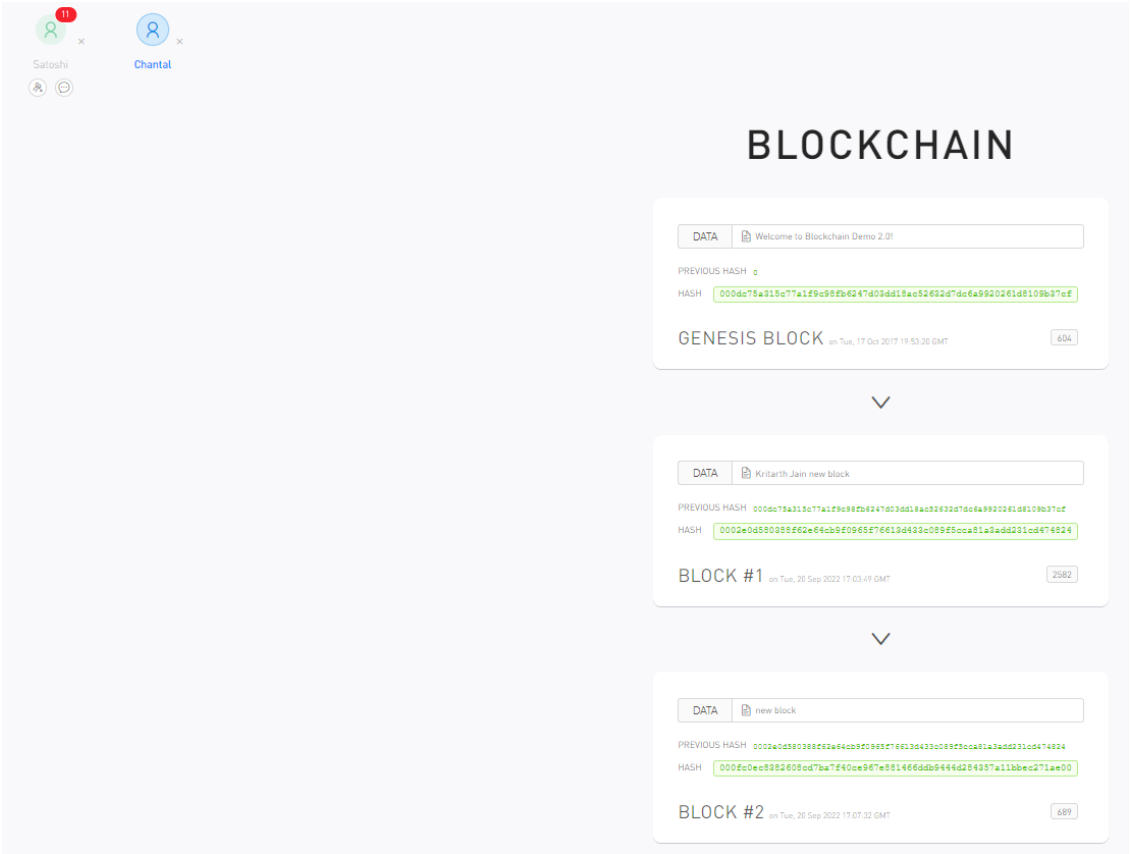


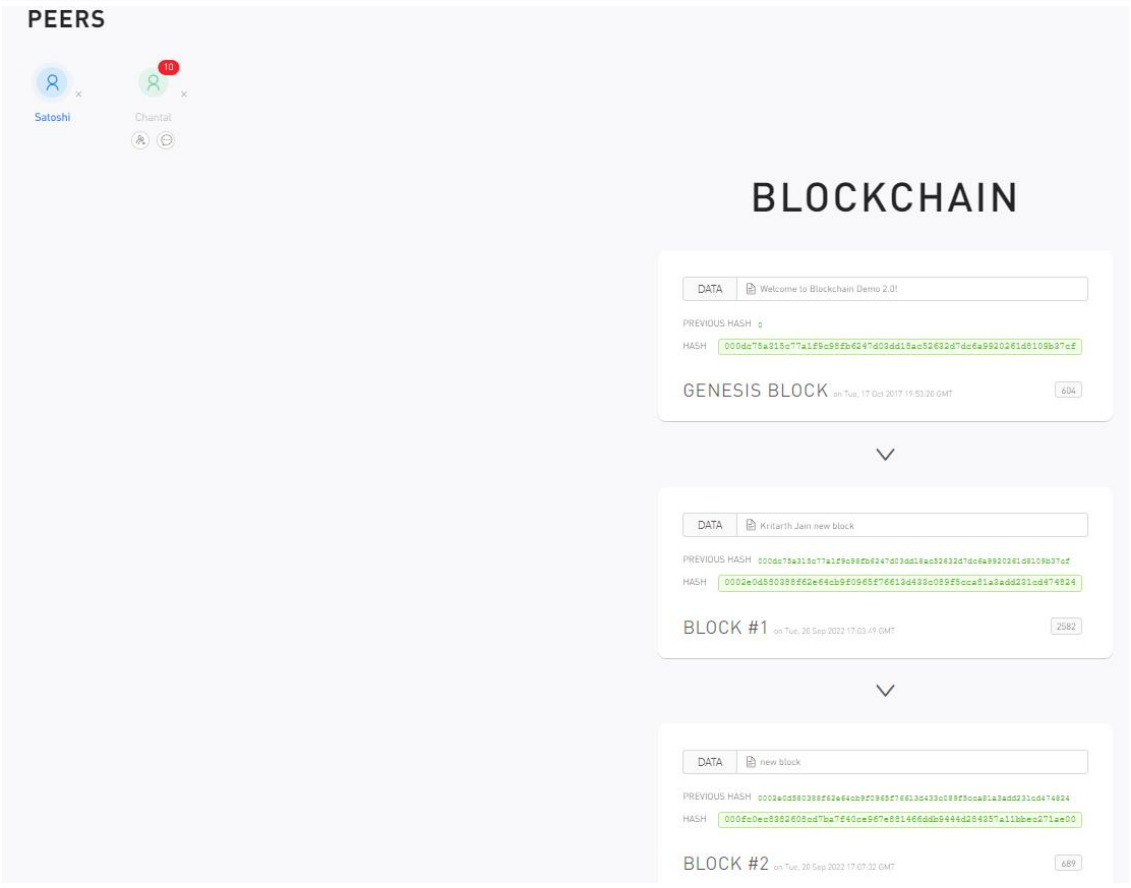
- We can also create another peer for the blockchain and connect it so that it recieves the validated and accepted version of the blockchain.





- If a block is added in peer 2 (chantal) then the change is broadcasted to all peers and satoshi would also have the block added to his chain.

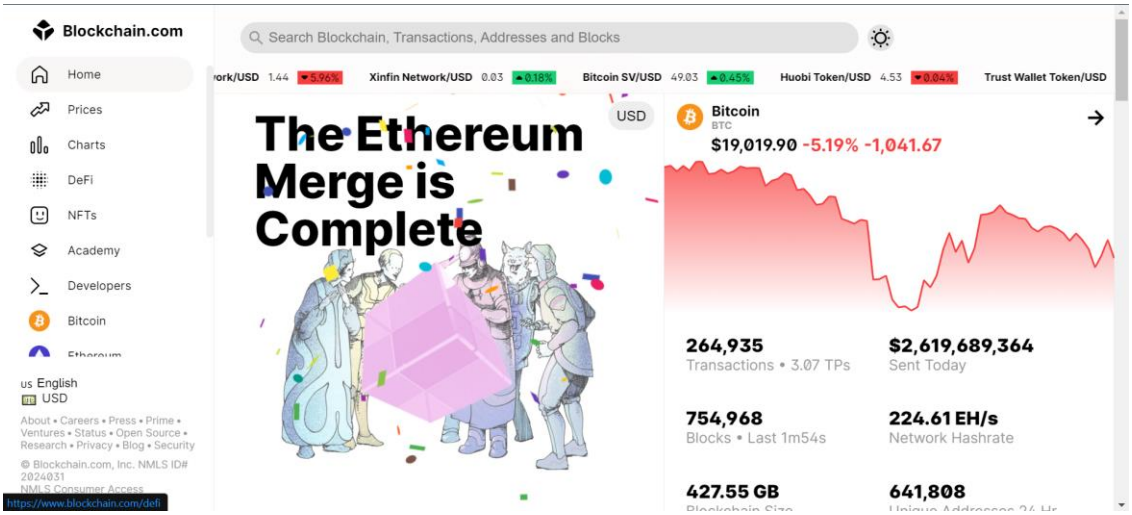

Satoshi
Chantal
BLOCKCHAIN
DATA
Welcome to Blockchain Demo 2.0!
PREVIOUS HASH
0
HASH
000dc75a315c77a1f9c98fb6247d03dd18ac52632d7dc6a9920261d8109b37cf
GENESIS BLOCK
604
DATA
Kritarth Jain new block
PREVIOUS HASH
000dc75a315c77a1f9c98fb6247d03dd18ac52632d7dc6a9920261d8109b37cf
HASH
0002e0d580388f62e64cb9f0965f76613d433c089f5cca81a3add231cd474824
BLOCK #1
2582
DATA
new block
PREVIOUS HASH
0002e0d580388f62e64cb9f0965f76613d433c089f5cca81a3add231cd474824
HASH
000fc0ec8382608cd7ba7f40ce967e881466ddb9444d264357a11bbec271ae00
BLOCK #2
689


PEERS
Satoshi
Chantal
BLOCKCHAIN
DATA
Welcome to Blockchain Demo 2.0!
PREVIOUS HASH
0
HASH
000dc75a315c77a1f9c98fb6247d03dd18ac52632d7dc6a9920261d8109b37cf
GENESIS BLOCK
604
DATA
Kritarth Jain new block
PREVIOUS HASH
000dc75a315c77a1f9c98fb6247d03dd18ac52632d7dc6a9920261d8109b37cf
HASH
0002e0d580388f62e64cb9f0965f76613d433c089f5cca81a3add231cd474824
BLOCK #1
2582
DATA
new block
PREVIOUS HASH
0002e0d580388f62e64cb9f0965f76613d433c089f5cca81a3add231cd474824
HASH
000fc0ec8382608cd7ba7f40ce967e881466ddb9444d264357a11bbec271ae00
BLOCK #2
689

Block explorer – Bitcoin: https://www.blockchain.com/explorer

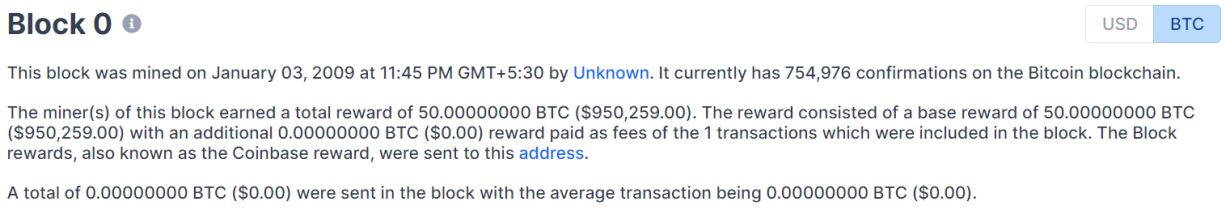
Block explorers can be thought of as search engines for the blockchain. They allow users to search information such as balances, contracts, and transactions. More advanced block explorers even offer indexing capabilities, which enable them to provide a complete set of information, such as ERC-20 tokens in the network. They might even offer API services to access it via external services.

- Bitcoin blockchain has several blocks whose data can be asily viewed using the block explorers.



- We can search for blocks using their block numbers. The genesis block of bitcoin :

The block explorer shows the time the block was mined, number blocks ahead of this block in the blockchain. It also shows the reward earned by the miner and the number of transaction with their bitcoin consumptions.



A table will be displayed at the bottom containing more information related to the block that is searched. Hash shows the has of the block header, confirmations shows the number of blocks added after the block, timestamps shows the time at which the block is inserted, height shows the number of blocks before this block, name of the miner, number of transations, nonce used to calculate block hash to satisfy proof of work, block reward, etc.

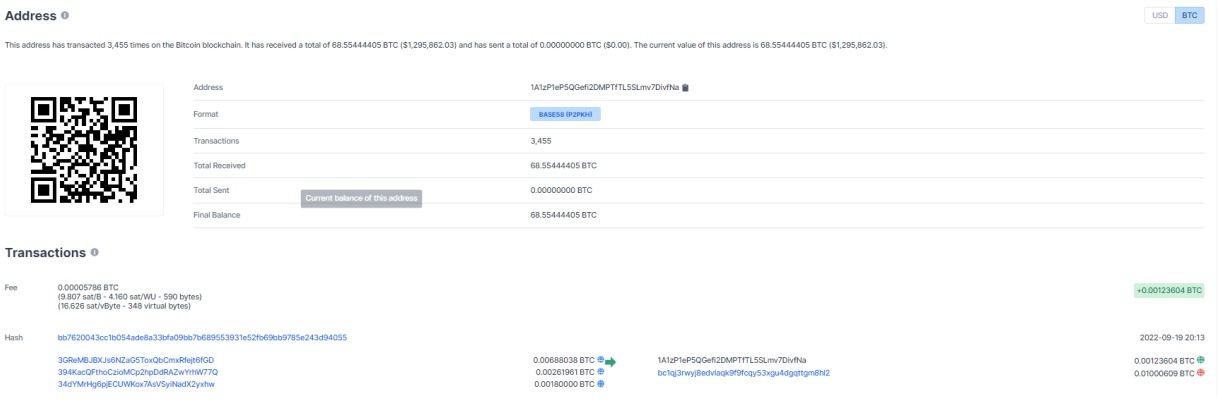
Hash	000000000019d6689c085ae165831e934ff763ae46a2a6c172b3f1b60a8ce26f
Confirmations	754,976
Timestamp	2009-01-03 23:45
Height	0
Miner	Unknown
Number of Transactions	1
Difficulty	1.00
Merkle root	4a5e1e4baab89f3a32518a88c31bc87f618f76673e2cc77ab2127b7afdeda33b
Version	0x1
Bits	486,604,799
Weight	1,140 WU
Size	285 bytes
Nonce	2,083,236,893
Transaction Volume	0.00000000 BTC
Block Reward	50.00000000 BTC
Fee Reward	0.00000000 BTC

The explorer also shows the different transactions along with bitcoins transferred along with the addresses of the sender and the recievers. The green symbol shows that the amount is unspent and can be used in further transactions.

Block Transactions

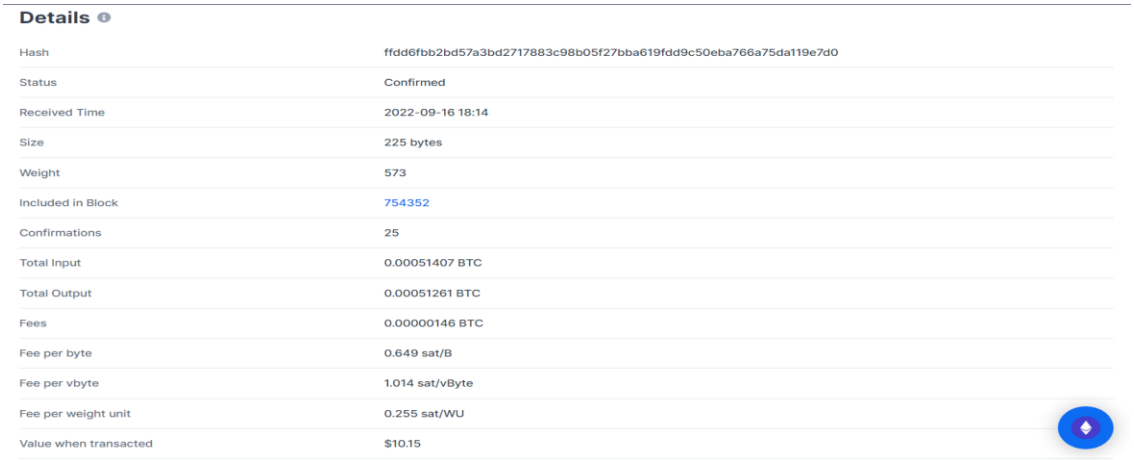
Fee	0.00000000 BTC (0.000 sat/B - 0.000 sat/WU - 204 bytes)		50.00000000 BTC
Hash	4a5e1e4baab89f3a32518a88c31bc87f618f76673e2cc77ab2127b7afdeda33b		2009-01-03 23:45
	COINBASE (Newly Generated Coins)	1A1zP1eP5QGefi2DMPTfTL5SLmv7DivfNa	50.00000000 BTC

We can also click on the addresses to get information about that bitcoin address including the number of transactions involving the address and the balance held by the address.



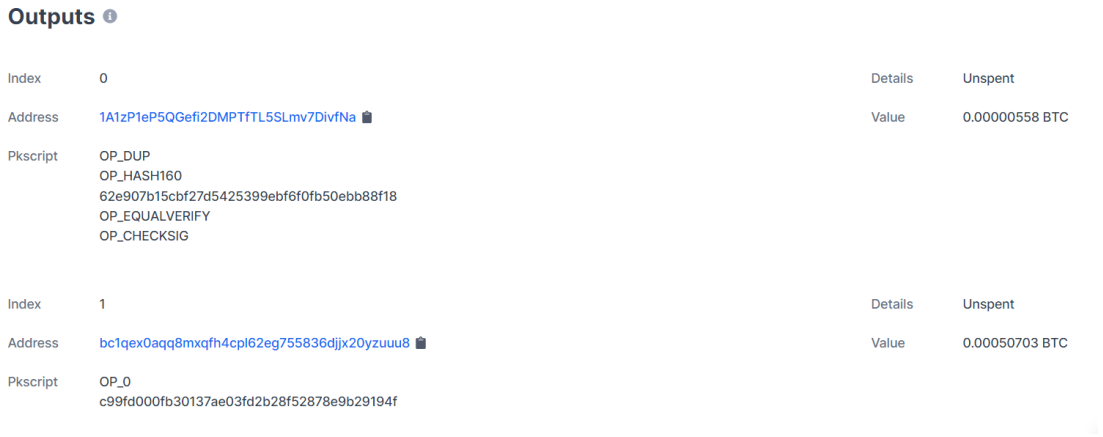
All the transactions involving the address can also been at the bottom of the page. All the transactions with its transaction fees, amount of btc's transferred, from and to address of the transaction and the date of the transation can also be visible.

Other details can also be seen at the bottom including size, status, value of the transaction when it was made, etc.



Input associated with the transaction and the output can also be seen at the end of the page.

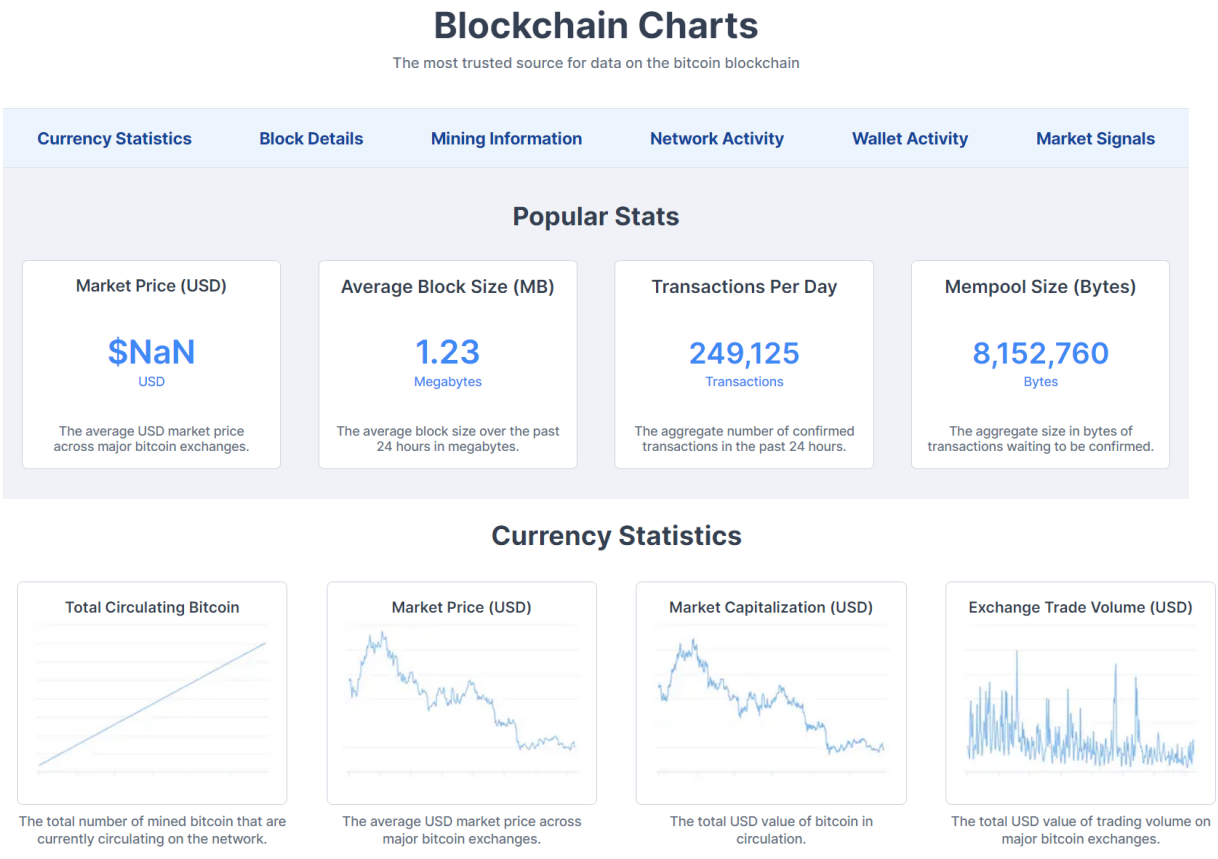
Output contains addresses, public key scripts and the amount of bitcoints spent/unspent.



Outputs

Index	0	Details	Unspent
Address	1A1zP1eP5QGefi2DMPTfTL5SLmv7DivfNa	Value	0.00000558 BTC
Pkscript	OP_DUP OP_HASH160 62e907b15cbf27d5425399ebf6f0fb50ebb88f18 OP_EQUALVERIFY OP_CHECKSIG		
Index	1	Details	Unspent
Address	bc1qex0aqq8mxqfh4cpl62eg755836djjx20yzuuu8	Value	0.00050703 BTC
Pkscript	OP_0 c99fd000fb30137ae03fd2b28f52878e9b29194f		

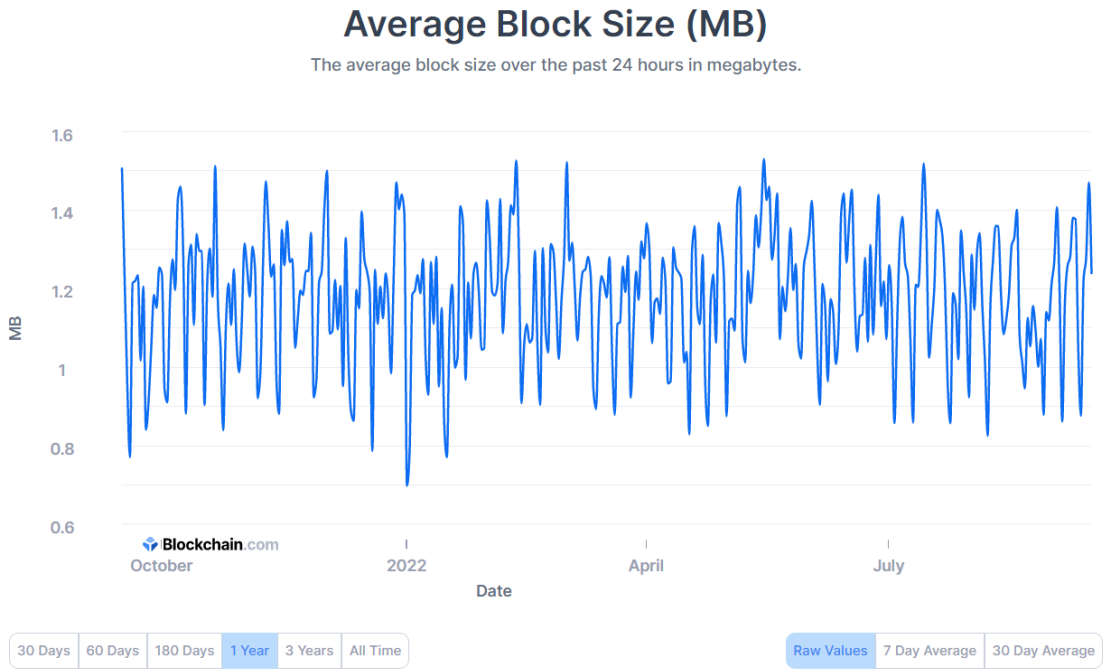
The block explorer also provides us with charts and statistics of the blockchain like currency statistics, block details, mining information, network activity, wallet activity etc.

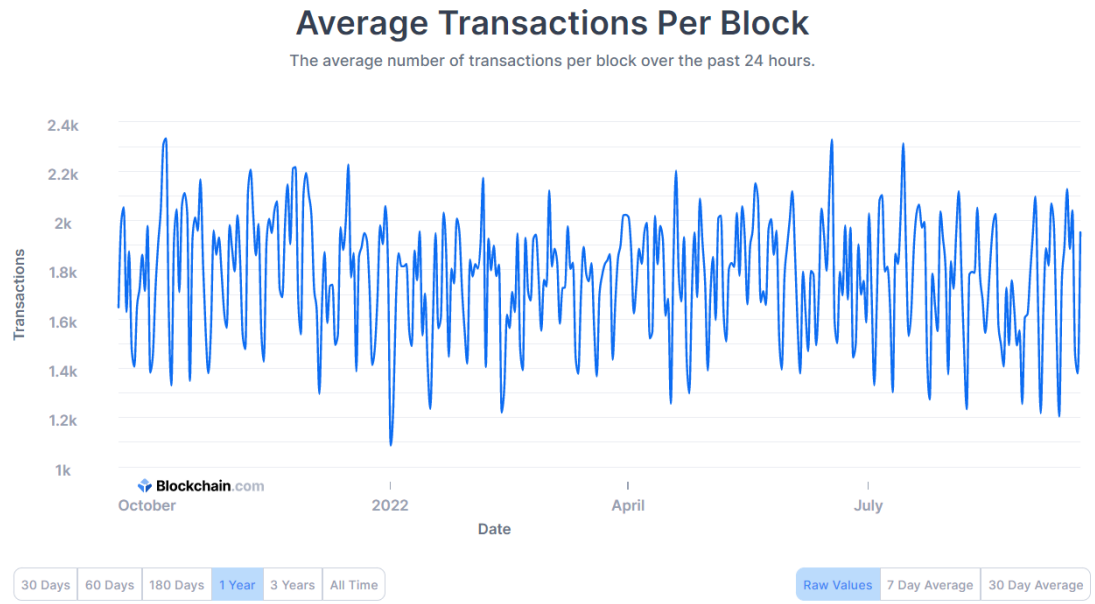


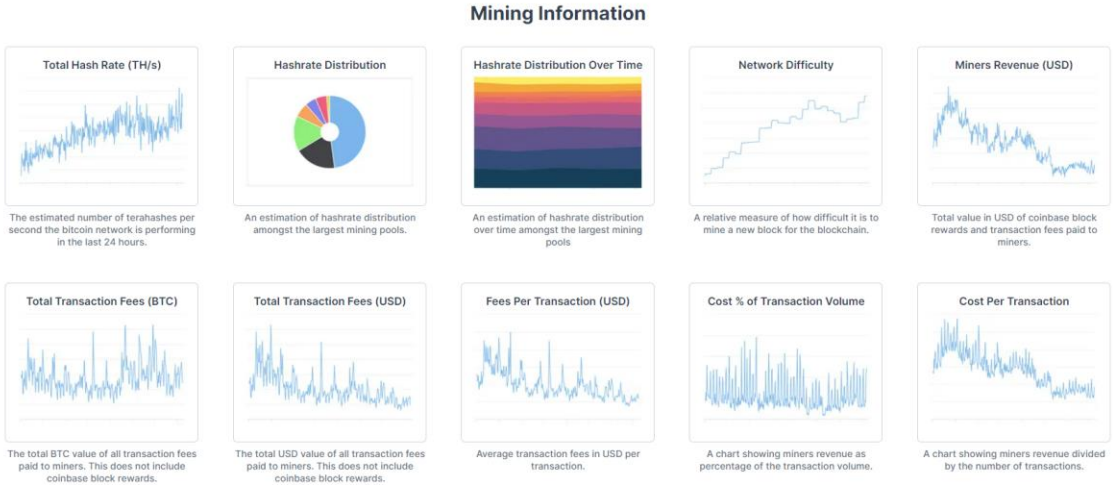

Market Price (USD)
The average USD market price across major bitcoin exchanges.
70k
60k
50k
40k
30k
20k
USD
28.345k
Blockchain.com
October
2022
April
Jun12,'22
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

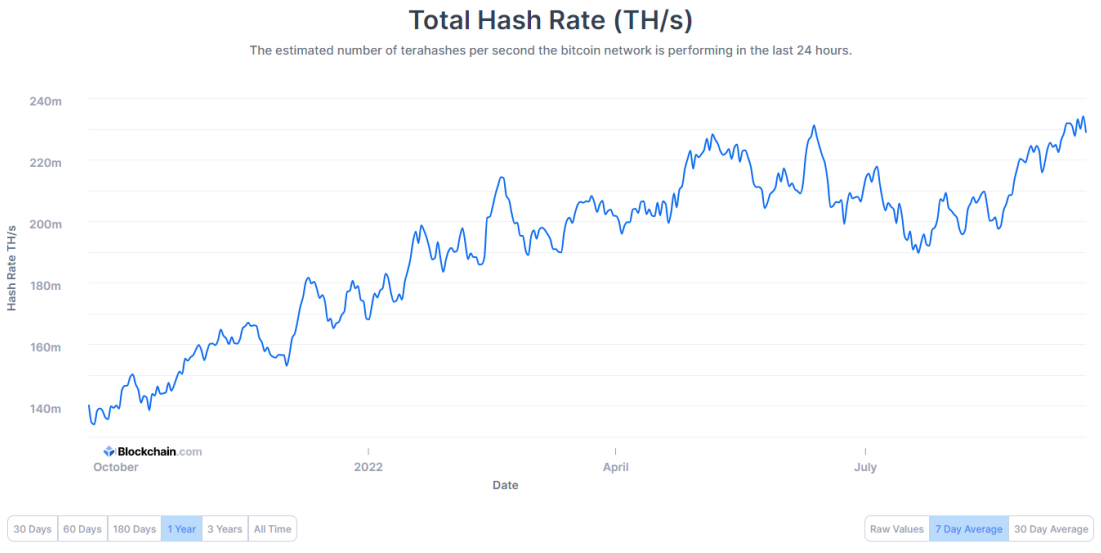

Market Capitalization (USD)
The total USD value of bitcoin in circulation.
900b
800b
700b
600b
500b
400b
300b
USD
768.339b
Apr17,'22
April
May
June
July
August
September
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

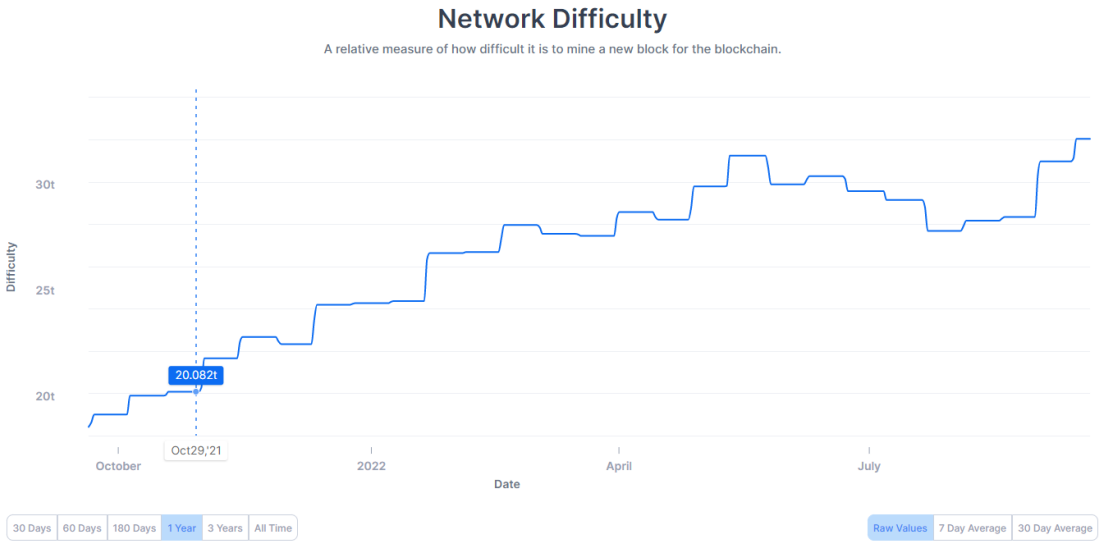

Block Details
Blockchain Size (MB)
The total size of the blockchain minus database indexes in megabytes.
Average Block Size (MB)
The average block size over the past 24 hours in megabytes.
Average Transactions Per Block
The average number of transactions per block over the past 24 hours.
Average Payments Per Block
The average number of payments per block over the past 24 hours.
Total Number of Transactions
Median Confirmation Time
Average Confirmation Time

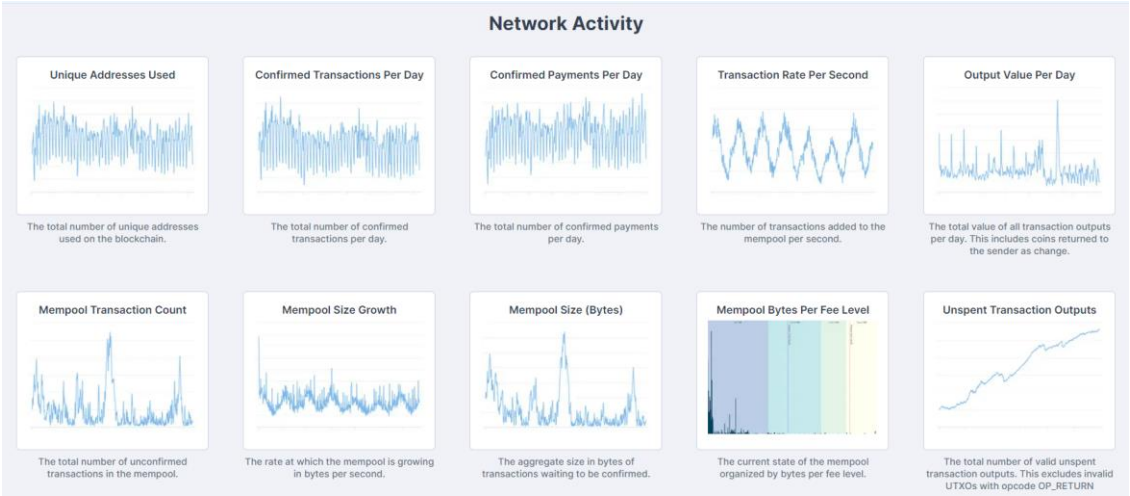

Average Block Size (MB)
The average block size over the past 24 hours in megabytes.
1.6
1.4
1.2
1
0.8
0.6
MB
Blockchain.com
October
2022
April
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

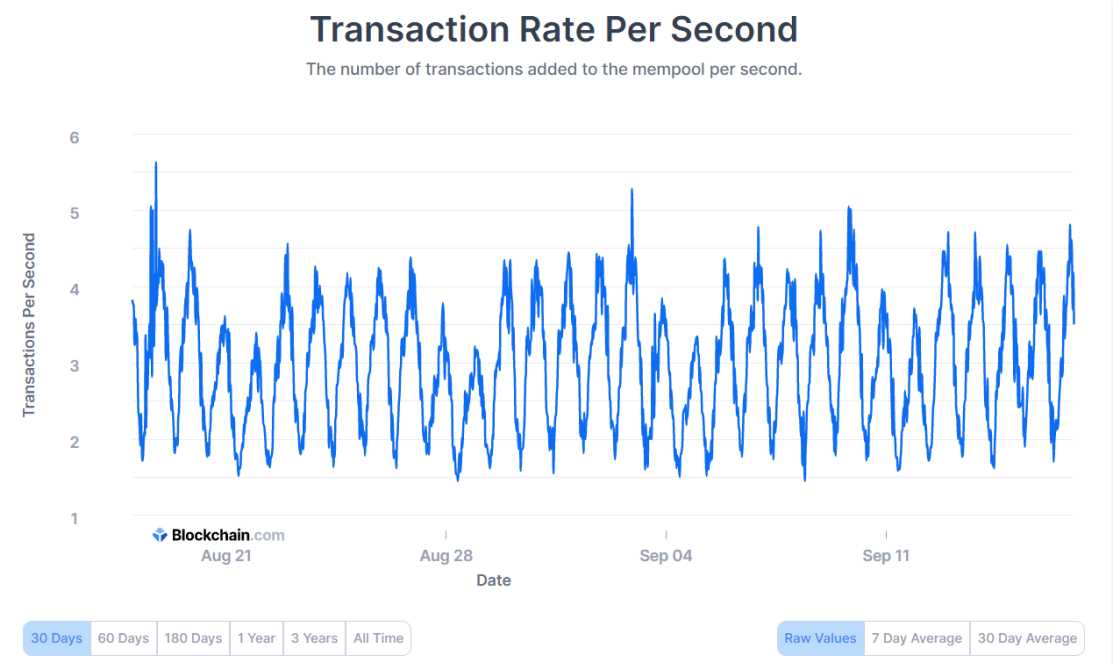

Average Transactions Per Block
The average number of transactions per block over the past 24 hours.
2.4k
2.2k
2k
1.8k
1.6k
1.4k
1.2k
1k
Transactions
Blockchain.com
October
2022
April
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

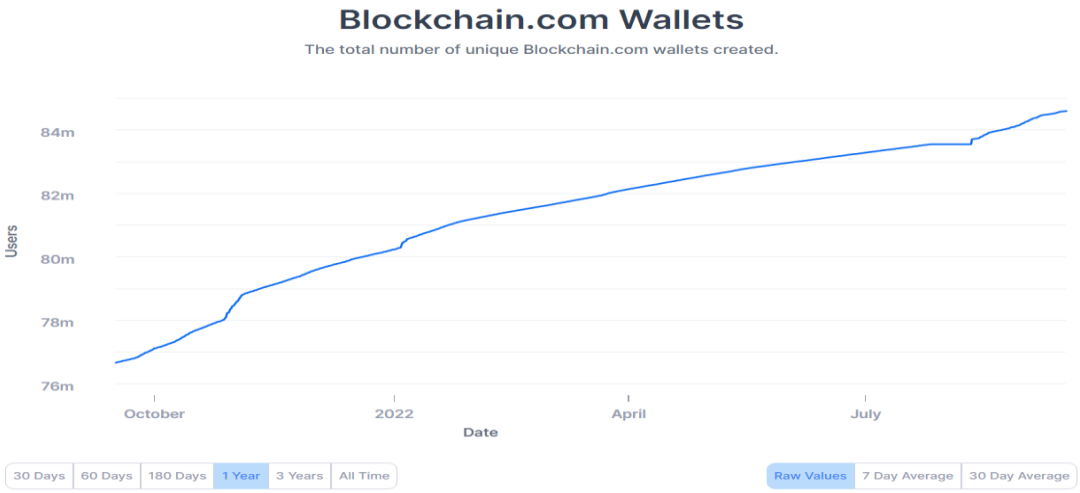

Mining Information
Total Hash Rate (TH/s)
The estimated number of terahashes per second the bitcoin network is performing in the last 24 hours.
Hashrate Distribution
An estimation of hashrate distribution amongst the largest mining pools.
Hashrate Distribution Over Time
An estimation of hashrate distribution over time amongst the largest mining pools
Network Difficulty
A relative measure of how difficult it is to mine a new block for the blockchain.
Miners Revenue (USD)
Total value in USD of coinbase block rewards and transaction fees paid to miners.
Total Transaction Fees (BTC)
The total BTC value of all transaction fees paid to miners. This does not include coinbase block rewards.
Total Transaction Fees (USD)
The total USD value of all transaction fees paid to miners. This does not include coinbase block rewards.
Fees Per Transaction (USD)
Average transaction fees in USD per transaction.
Cost % of Transaction Volume
A chart showing miners revenue as percentage of the transaction volume.
Cost Per Transaction
A chart showing miners revenue divided by the number of transactions.

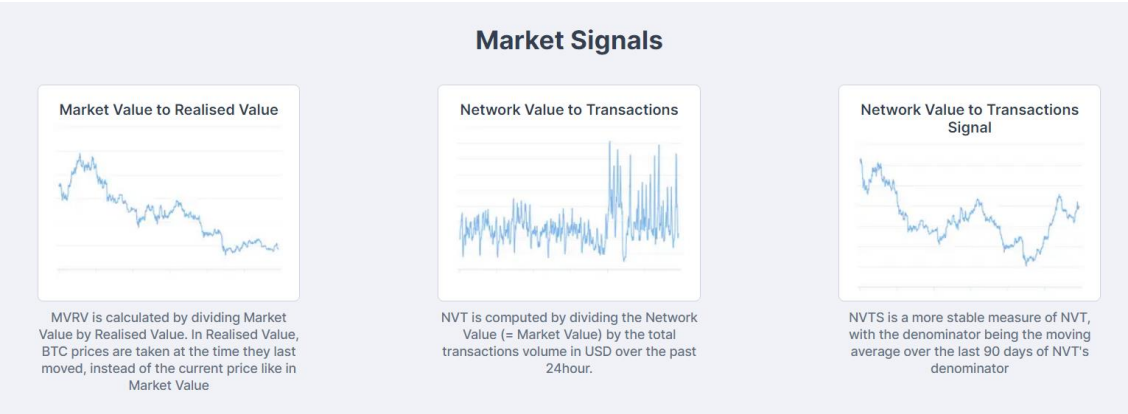

Total Hash Rate (TH/s)
The estimated number of terahashes per second the bitcoin network is performing in the last 24 hours.
240m
220m
200m
180m
160m
140m
Hash Rate TH/s
Blockchain.com
October
2022
April
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

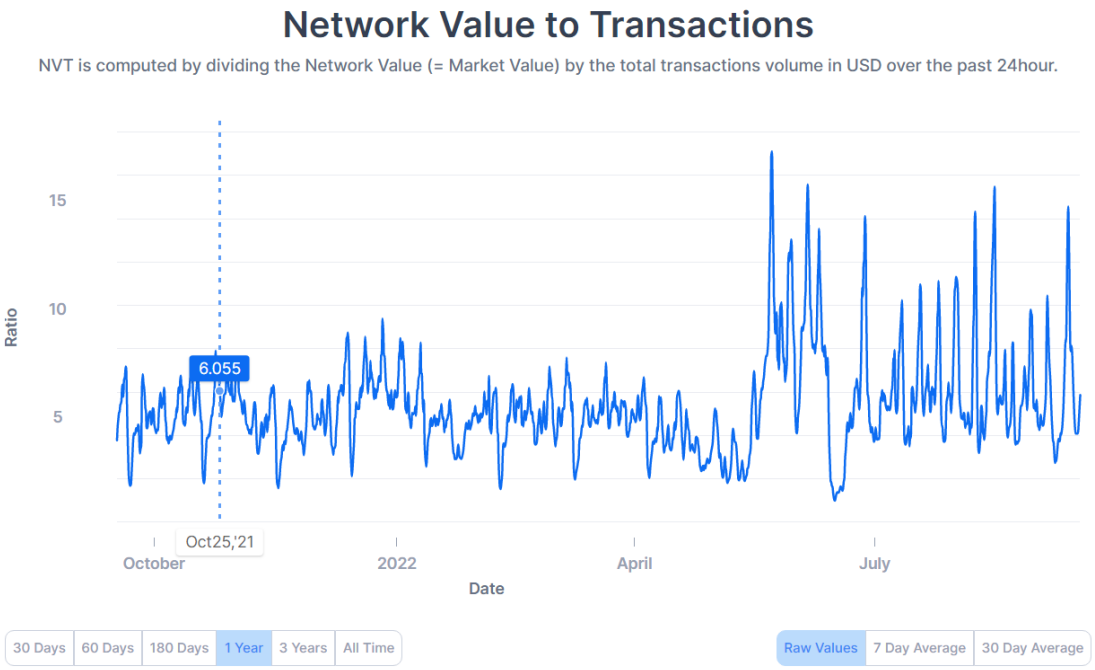

Network Difficulty
A relative measure of how difficult it is to mine a new block for the blockchain.
30t
25t
20t
Difficulty
20.082t
October
Oct29,'21
2022
April
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average


Network Activity
Unique Addresses Used
The total number of unique addresses used on the blockchain.
Confirmed Transactions Per Day
The total number of confirmed transactions per day.
Confirmed Payments Per Day
The total number of confirmed payments per day.
Transaction Rate Per Second
The number of transactions added to the mempool per second.
Output Value Per Day
The total value of all transaction outputs per day. This includes coins returned to the sender as change.
Mempool Transaction Count
The total number of unconfirmed transactions in the mempool.
Mempool Size Growth
The rate at which the mempool is growing in bytes per second.
Mempool Size (Bytes)
The aggregate size in bytes of transactions waiting to be confirmed.
Mempool Bytes Per Fee Level
The current state of the mempool organized by bytes per fee level.
Unspent Transaction Outputs
The total number of valid unspent transaction outputs. This excludes invalid UTXOs with opcode OP_RETURN


Transaction Rate Per Second
The number of transactions added to the mempool per second.
6
5
4
3
2
1
Transactions Per Second
Blockchain.com
Aug 21
Aug 28
Sep 04
Sep 11
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

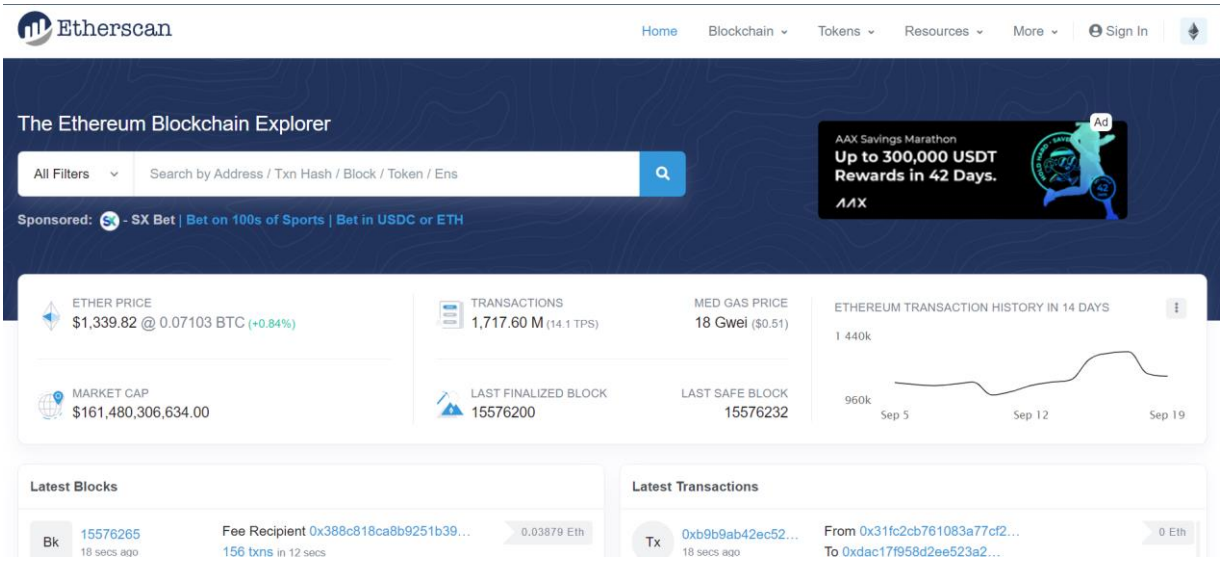

Blockchain.com Wallets
The total number of unique Blockchain.com wallets created.
84m
82m
80m
78m
76m
Users
October
2022
April
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average


Market Signals
Market Value to Realised Value
MVRV is calculated by dividing Market Value by Realised Value. In Realised Value, BTC prices are taken at the time they last moved, instead of the current price like in Market Value
Network Value to Transactions
NVT is computed by dividing the Network Value (= Market Value) by the total transactions volume in USD over the past 24hour.
Network Value to Transactions Signal
NVTS is a more stable measure of NVT, with the denominator being the moving average over the last 90 days of NVT's denominator

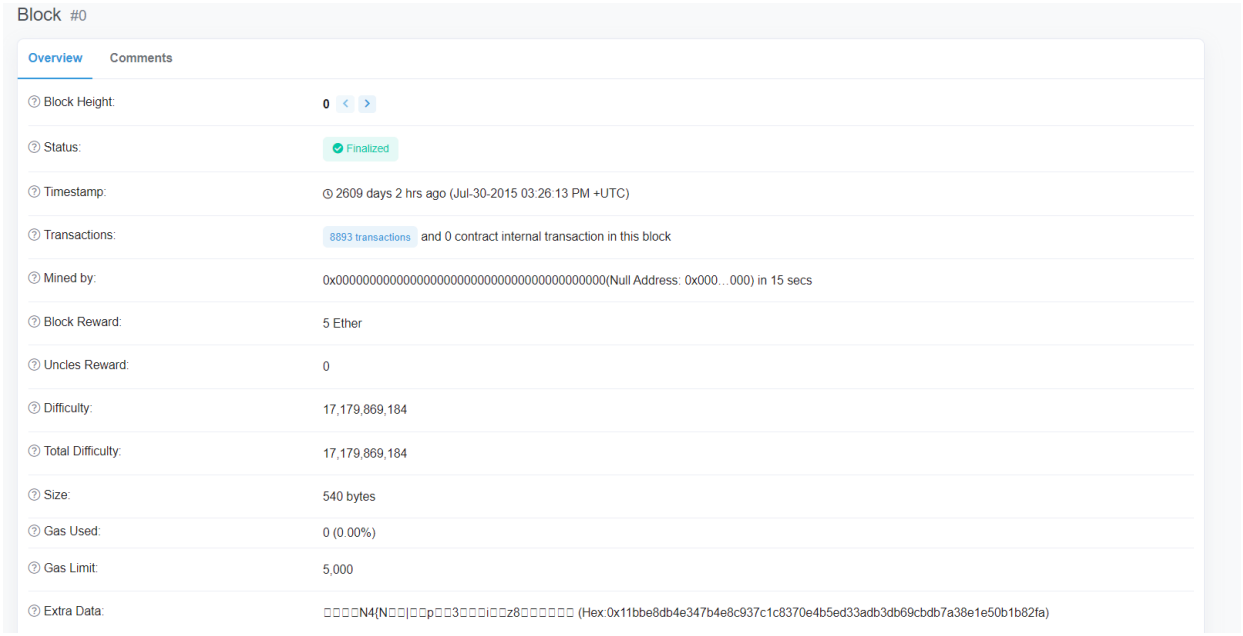

Network Value to Transactions
NVT is computed by dividing the Network Value (= Market Value) by the total transactions volume in USD over the past 24hour.
15
10
5
Ratio
6.055
Oct25,'21
October
2022
April
July
Date
30 Days
60 Days
180 Days
1 Year
3 Years
All Time
Raw Values
7 Day Average
30 Day Average

Block explorer – Ethereum: https://etherscan.io/

Ethereum blocks can be viewed by using etherscan.



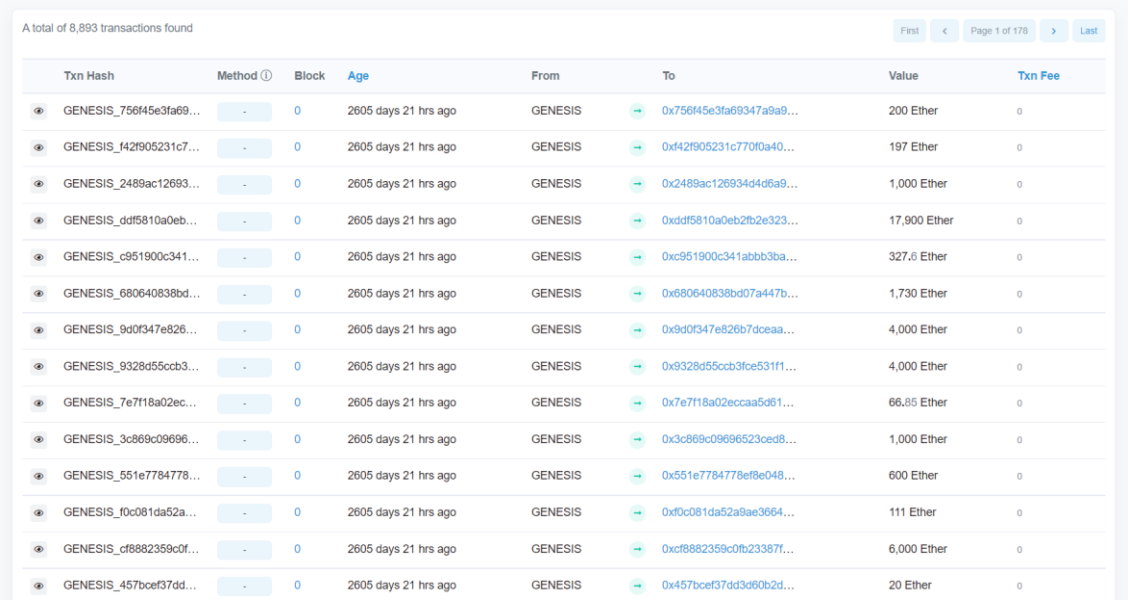
The genesis block in ethereum :



Ether Price:	N/A
Hash:	0xd4e56740f876aef8c010b86a40d5f56745a118d0906a34e69aec8c0db1cb8fa3
Parent Hash:	0x0000000000000000000000000000000000000000000000000000000000000000
Sha3Uncles:	0x1dcc4de8dec75d7aab85b567b6ccd41ad312451b948a7413f0a142fd40d49347
StateRoot:	0xd7f8974fb5ac78d9ac099b9ad5018bedc2ce0a72dad1827a1709da30580f0544
Nonce:	0x0000000000000042

Click to see less

The explorer also shows the different transactions along with ethers transferred along with the addresses of the sender and the recievers.

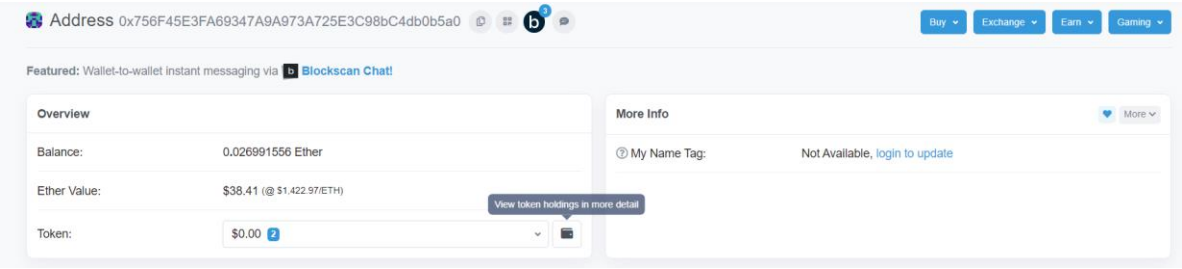


A total of 8,893 transactions found

First | Page 1 of 178 | Last

Txn Hash	Method	Block	Age	From	To	Value	Txn Fee
GENESIS_756f45e3fa69…	-	0	2605 days 21 hrs ago	GENESIS	0x756f45e3fa69347a9a9…	200 Ether	0
GENESIS_f42f905231c7…	-	0	2605 days 21 hrs ago	GENESIS	0xf42f905231c770f0a40…	197 Ether	0
GENESIS_2489ac12693…	-	0	2605 days 21 hrs ago	GENESIS	0x2489ac126934d4d6a9…	1,000 Ether	0
GENESIS_ddf5810a0eb…	-	0	2605 days 21 hrs ago	GENESIS	0xddf5810a0eb2fb2e323…	17,900 Ether	0
GENESIS_c951900c341…	-	0	2605 days 21 hrs ago	GENESIS	0xc951900c341abbb3ba…	327.6 Ether	0
GENESIS_680640838bd…	-	0	2605 days 21 hrs ago	GENESIS	0x680640838bd07a447b…	1,730 Ether	0
GENESIS_9d0f347e826…	-	0	2605 days 21 hrs ago	GENESIS	0x9d0f347e826b7dceaa…	4,000 Ether	0
GENESIS_9328d55ccb3…	-	0	2605 days 21 hrs ago	GENESIS	0x9328d55ccb3fce531f1…	4,000 Ether	0
GENESIS_7e7f18a02ec…	-	0	2605 days 21 hrs ago	GENESIS	0x7e7f18a02eccaa5d61…	66.85 Ether	0
GENESIS_3c869c09696…	-	0	2605 days 21 hrs ago	GENESIS	0x3c869c09696523ced8…	1,000 Ether	0
GENESIS_551e7784778…	-	0	2605 days 21 hrs ago	GENESIS	0x551e7784778ef8e048…	600 Ether	0
GENESIS_f0c081da52a…	-	0	2605 days 21 hrs ago	GENESIS	0xf0c081da52a9ae3664…	111 Ether	0
GENESIS_cf8882359c0f…	-	0	2605 days 21 hrs ago	GENESIS	0xcf8882359c0fb23387f…	6,000 Ether	0
GENESIS_457bcef37dd…	-	0	2605 days 21 hrs ago	GENESIS	0x457bcef37dd3d60b2d…	20 Ether	0

We can also click on the addresses to get information about that bitcoin address including the number of transactions involving the address and the balance held by the address.



Address 0x756F45E3FA69347A9A973A725E3C98bC4db0b5a0

Buy | Exchange | Earn | Gaming

Featured: Wallet-to-wallet instant messaging via Blockscan Chat!

Overview

Balance: 0.026991556 Ether

Ether Value: $38.41 (@ $1,422.97/ETH)

Token: $0.00 2

View token holdings in more detail

More Info

More

My Name Tag: Not Available, login to update

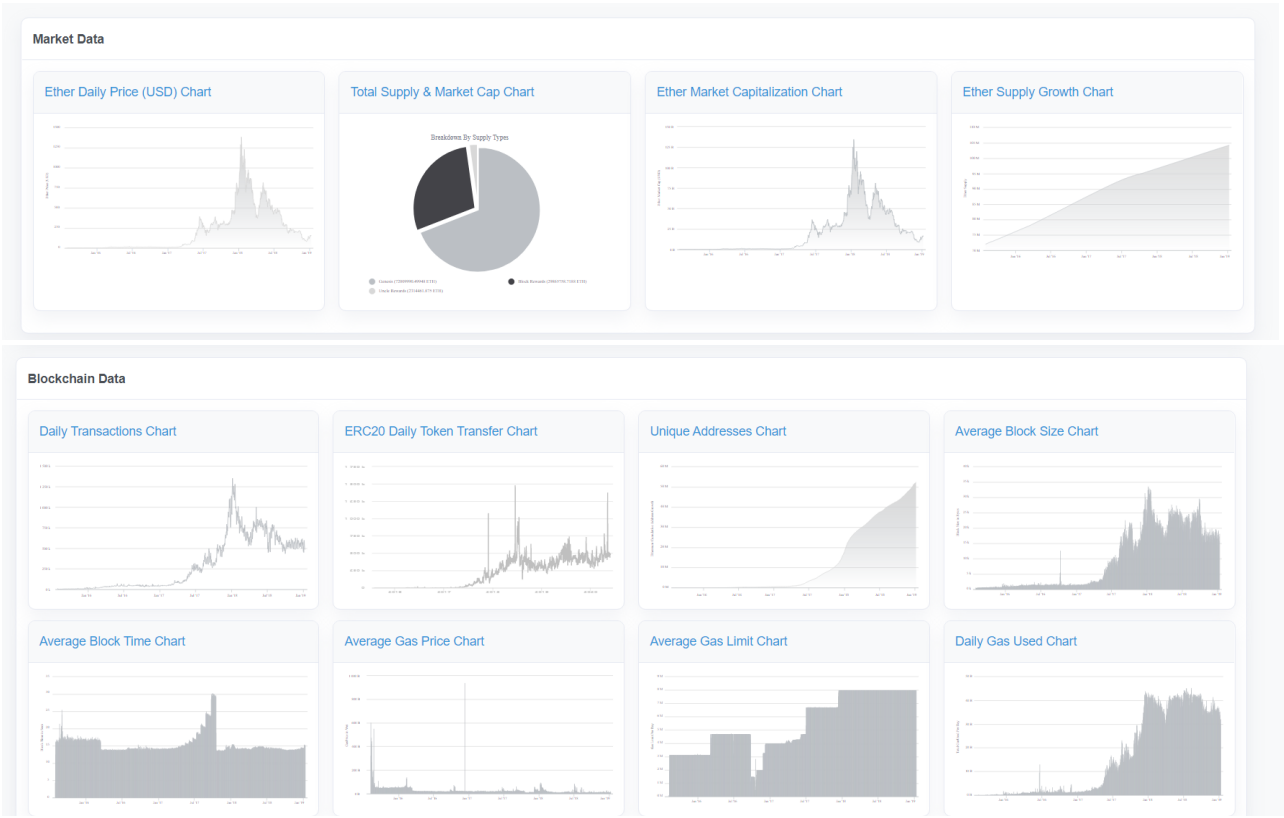
All the transactions involving the address can also been at the bottom of the page. All the transactions with its transaction fees, amount of ethers transferred, from and to address of the transaction and the date of the transation can also be visible.

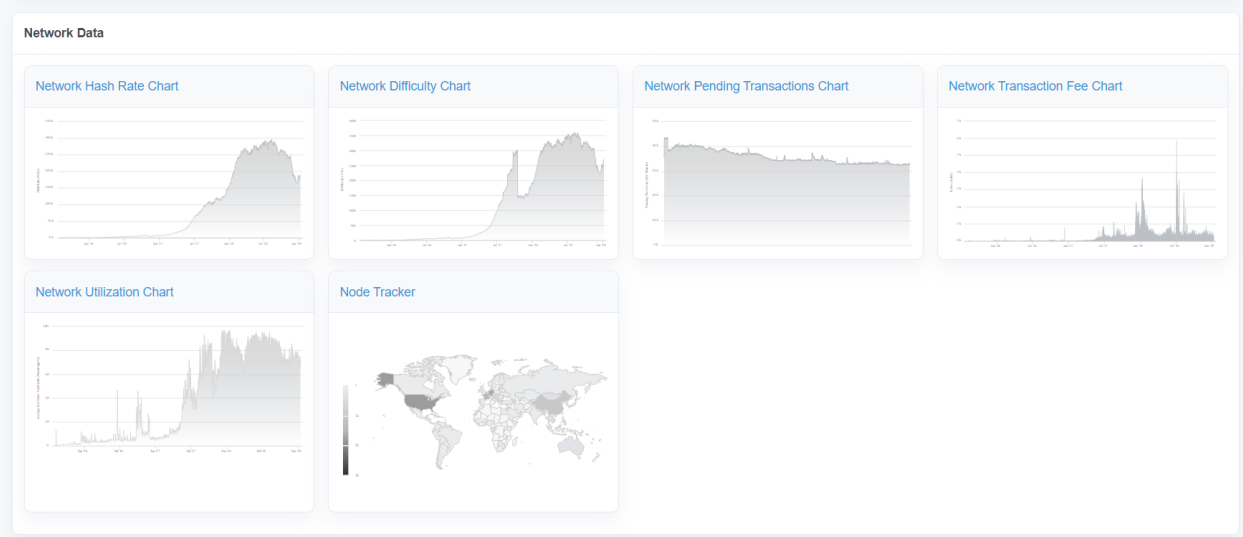
Transactions | Erc20 Token Txns | Erc721 Token Txns | Analytics | Comments

Latest 12 from a total of 12 transactions

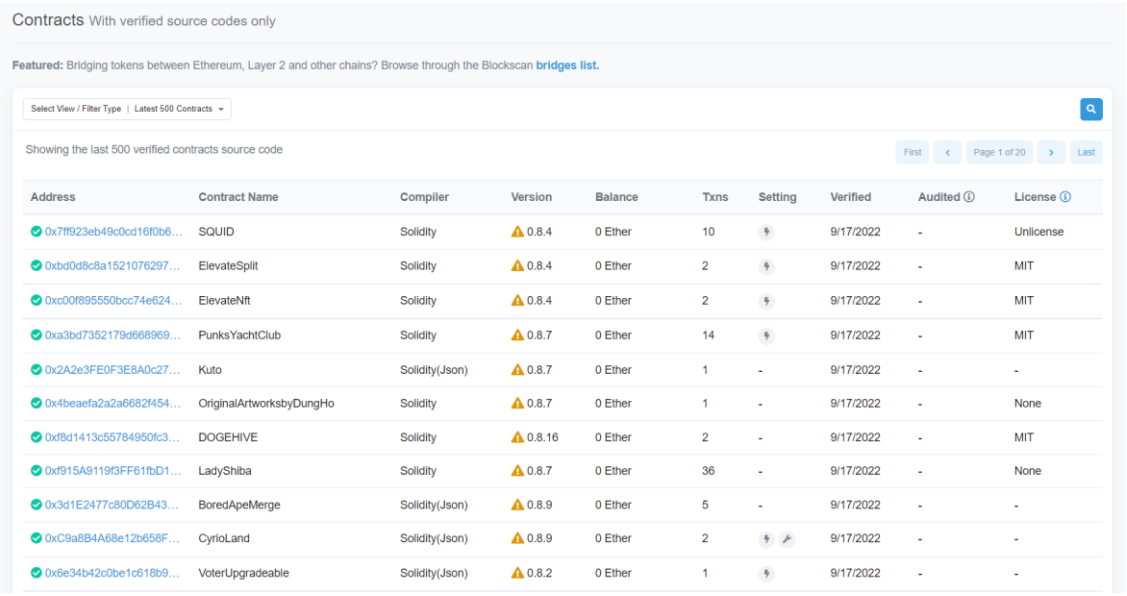
Txn Hash	Method	Block	Age	From		To	Value	Txn Fee
0xf31b0681935feaab35c…	Transfer	14633598	148 days 4 hrs ago	0x8f40bebfad753e6392d…	IN	0x756f45e3fa69347a9a9…	0.000001 Ether	0.000525
0x8244c599c49f2de53b…	Transfer*	8986057	1029 days 1 hr ago	0x503a58e109472e0ccd…	IN	0x756f45e3fa69347a9a9…	0 Ether	0.00090839
0x44551137c41dac6792…	Transfer*	7604889	1245 days 22 hrs ago	0x3b4a51b7ce963f67eff…	IN	0x756f45e3fa69347a9a9…	0.0001 Ether	0.00013297
0xe98d615c6dc1451753…	Transfer*	7604812	1245 days 23 hrs ago	0x3b4a51b7ce963f67eff…	IN	0x756f45e3fa69347a9a9…	0.0001 Ether	0.00016826
0x1a3129403adbd9fd23…	Transfer*	7311164	1291 days 17 hrs ago	0xedda2485b61f104a7e…	IN	0x756f45e3fa69347a9a9…	0 Ether	0.0021474
0x7caed935a73739b3ac…	Transfer*	7243635	1305 days 5 hrs ago	0xce5a6c61c6248bd27a…	IN	0x756f45e3fa69347a9a9…	0 Ether	0.00173592
0x9dcff877b3cd89c438fc…	Transfer*	7188588	1317 days 21 hrs ago	0xedda2485b61f104a7e…	IN	0x756f45e3fa69347a9a9…	0.001 Ether	0.00022496
0xf9ec6b20cc12d925c68…	Transfer*	6781827	1390 days 1 hr ago	0xf0e5be083d3f68d72e2…	IN	0x756f45e3fa69347a9a9…	0.02579055 Ether	0.01687248
0x03d67fc7d5cb93d15b…	Transfer	3735378	1946 days 11 hrs ago	0x756f45e3fa69347a9a9…	OUT	0x29657c5040f26d93bc…	0.098677 Ether	0.000441
0x1d46468dd7446214b4…	Transfer	3735321	1946 days 11 hrs ago	0x756f45e3fa69347a9a9…	OUT	0x29657c5040f26d93bc…	99.9 Ether	0.000441
0x1097c636f99f179de27…	Transfer	3735318	1946 days 11 hrs ago	0x756f45e3fa69347a9a9…	OUT	0x06ab4623f405f2ba6c1…	100 Ether	0.000441
GENESIS_756f45e3fa69…	-	0	2605 days 21 hrs ago	GENESIS	IN	0x756f45e3fa69347a9a9…	200 Ether	0

Like bitcoin, ethereum block explorer also provides the hsitorical data of the ethereum in terms of charts which can be seen in the charts section. Market data, Blockchain data, network data, etc are available in the charts section.





Ethereum includes smart contracts which are computer programs or transaction protocols that are intended to automatically execute, control or document legally relevant events and actions according to the terms of a contract or an agreement Etherscan shows information related to that is also available with the name of the compiler, version, balance, transactions, date of verification, license, etc.



Contracts With verified source codes only

Featured: Bridging tokens between Ethereum, Layer 2 and other chains? Browse through the Blockscan **bridges list.**

Select View / Filter Type | Latest 500 Contracts

Showing the last 500 verified contracts source code

First | Page 1 of 20 | Last

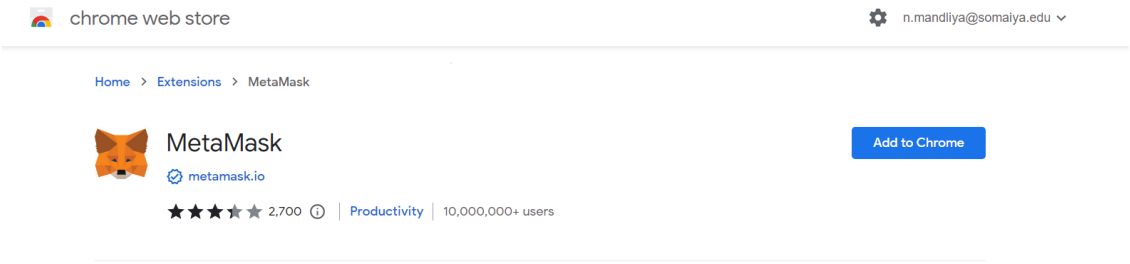
Address	Contract Name	Compiler	Version	Balance	Txns	Setting	Verified	Audited	License
0x7ff923eb49c0cd16f0b6...	SQUID	Solidity	0.8.4	0 Ether	10		9/17/2022	-	Unlicense
0xbd0d8c8a1521076297...	ElevateSplit	Solidity	0.8.4	0 Ether	2		9/17/2022	-	MIT
0xc00f895550bcc74e624...	ElevateNft	Solidity	0.8.4	0 Ether	2		9/17/2022	-	MIT
0xa3bd7352179d668969...	PunksYachtClub	Solidity	0.8.7	0 Ether	14		9/17/2022	-	MIT
0x2A2e3FE0F3E8A0c27...	Kuto	Solidity(Json)	0.8.7	0 Ether	1	-	9/17/2022	-	-
0x4beaefa2a2a6682f454...	OriginalArtworksbyDungHo	Solidity	0.8.7	0 Ether	1	-	9/17/2022	-	None
0xf8d1413c55784950fc3...	DOGEHIVE	Solidity	0.8.16	0 Ether	2	-	9/17/2022	-	MIT
0xf915A9119f3FF61fbD1...	LadyShiba	Solidity	0.8.7	0 Ether	36	-	9/17/2022	-	None
0x3d1E2477c80D62B43...	BoredApeMerge	Solidity(Json)	0.8.9	0 Ether	5	-	9/17/2022	-	-
0xC9a8B4A68e12b658F...	CyrioLand	Solidity(Json)	0.8.9	0 Ether	2		9/17/2022	-	-
0x6e34b42c0be1c618b9...	VoterUpgradeable	Solidity(Json)	0.8.2	0 Ether	1		9/17/2022	-	-

Testnets:

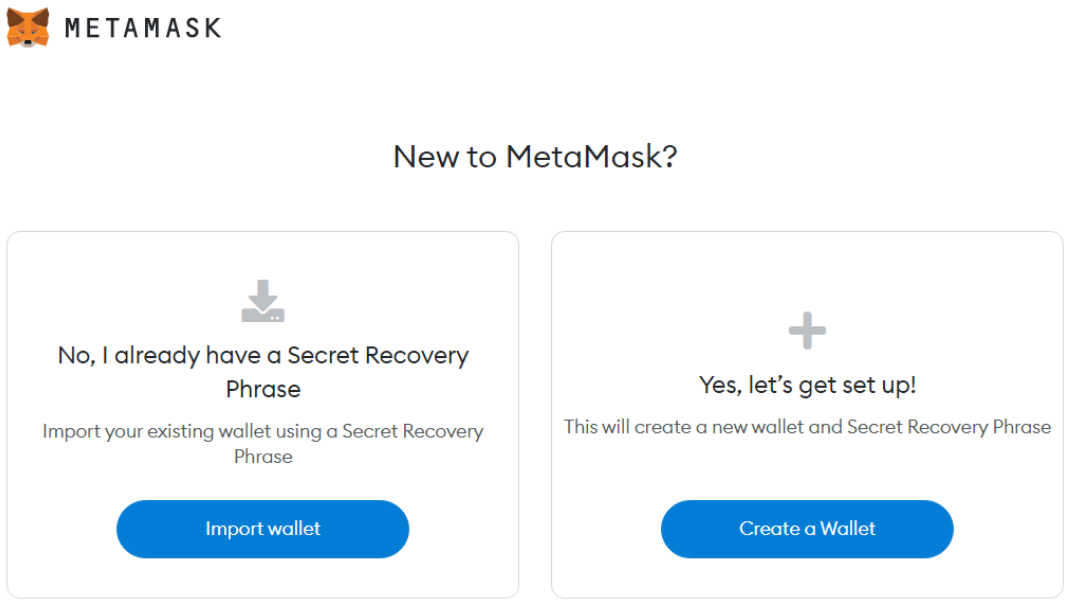
In blockchain technology, a testnet is an instance of a blockchain powered by the same or a newer version of the underlying software, to be used for testing and experimentation without risk to real funds or the main chain. Testnet coins are separate and distinct from the official (*mainnet*) coins, don't have value, and can be obtained freely from *faucets*. Testnets can be reset at any time.

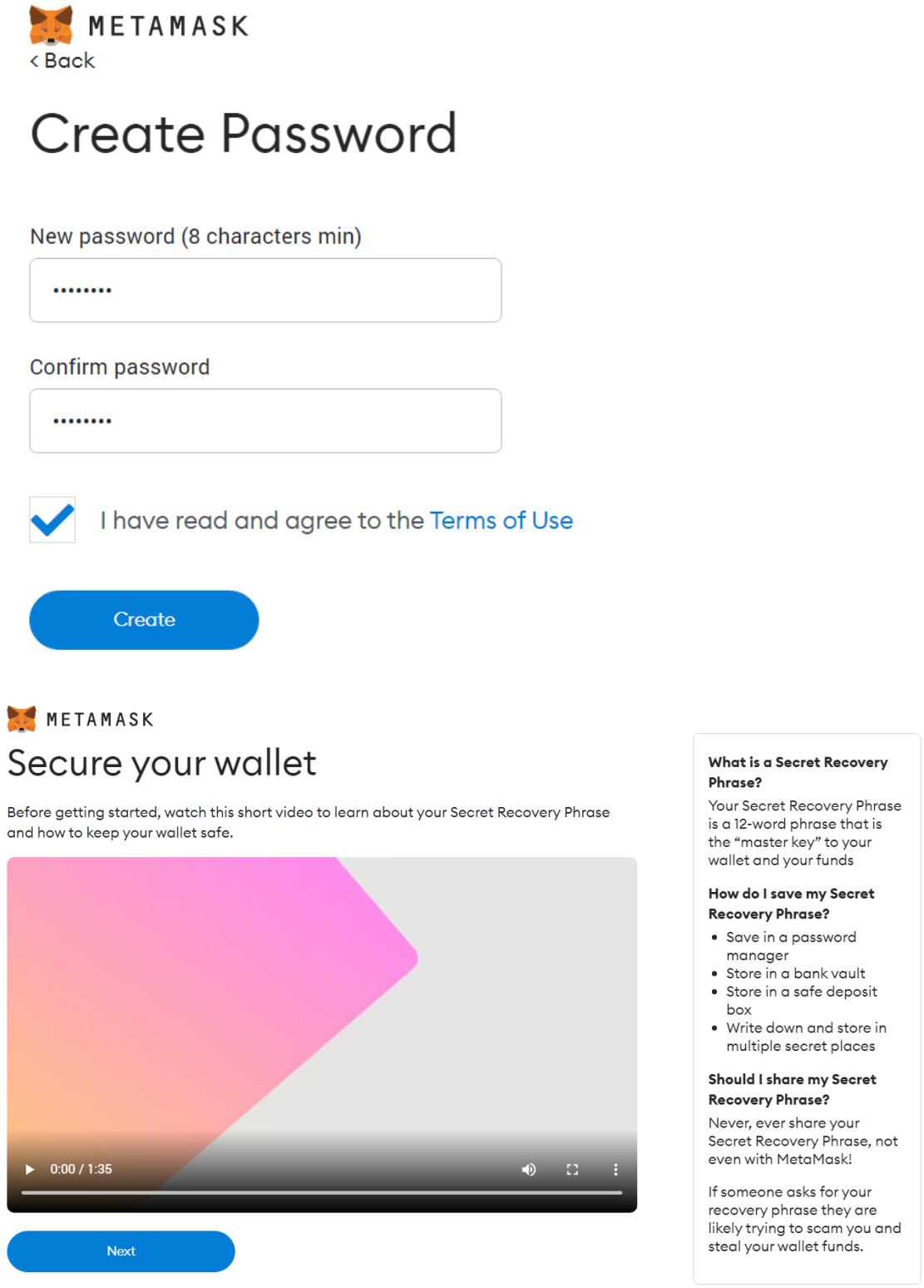
Metamask: https://metamask.io/

Install Metamask extension from chrome.

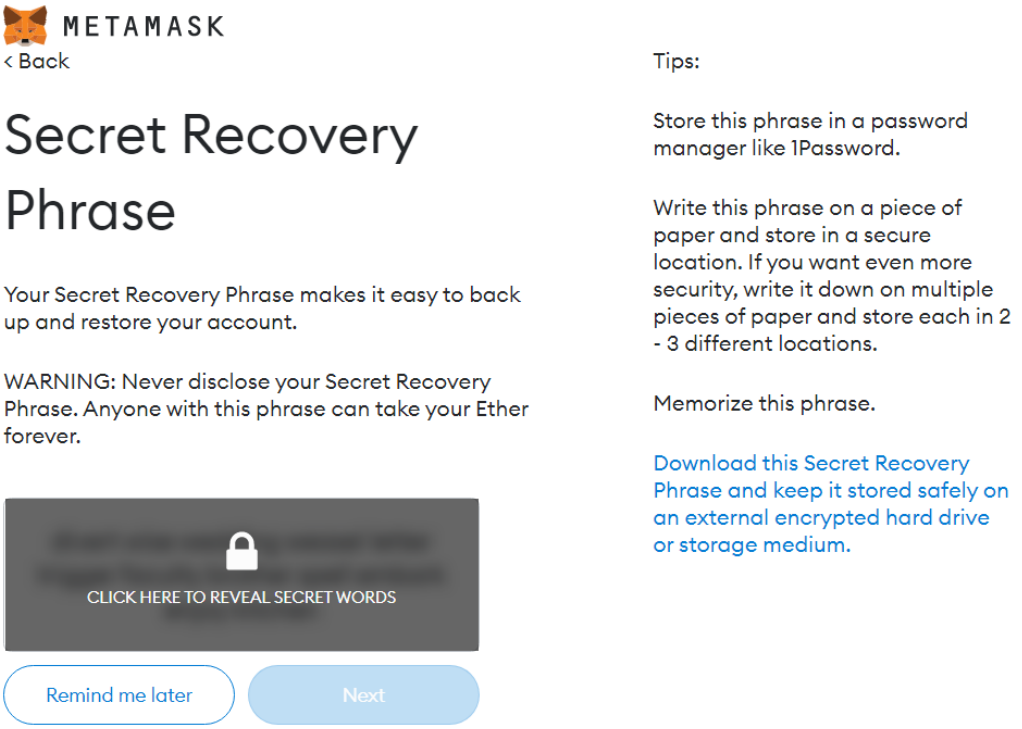


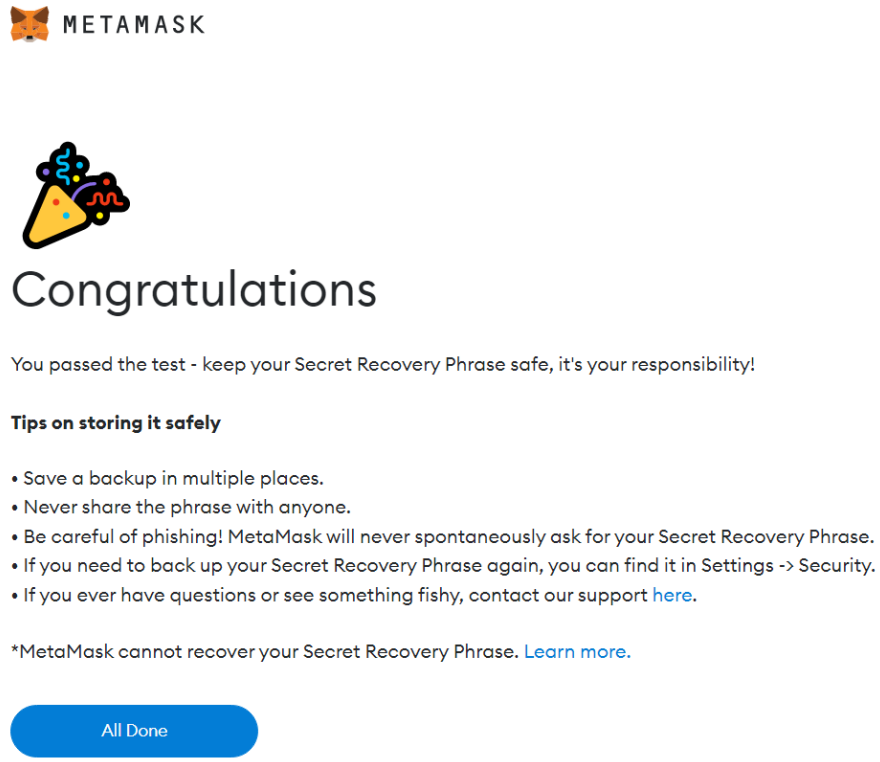
Open the chrome extension and click on create wallet.



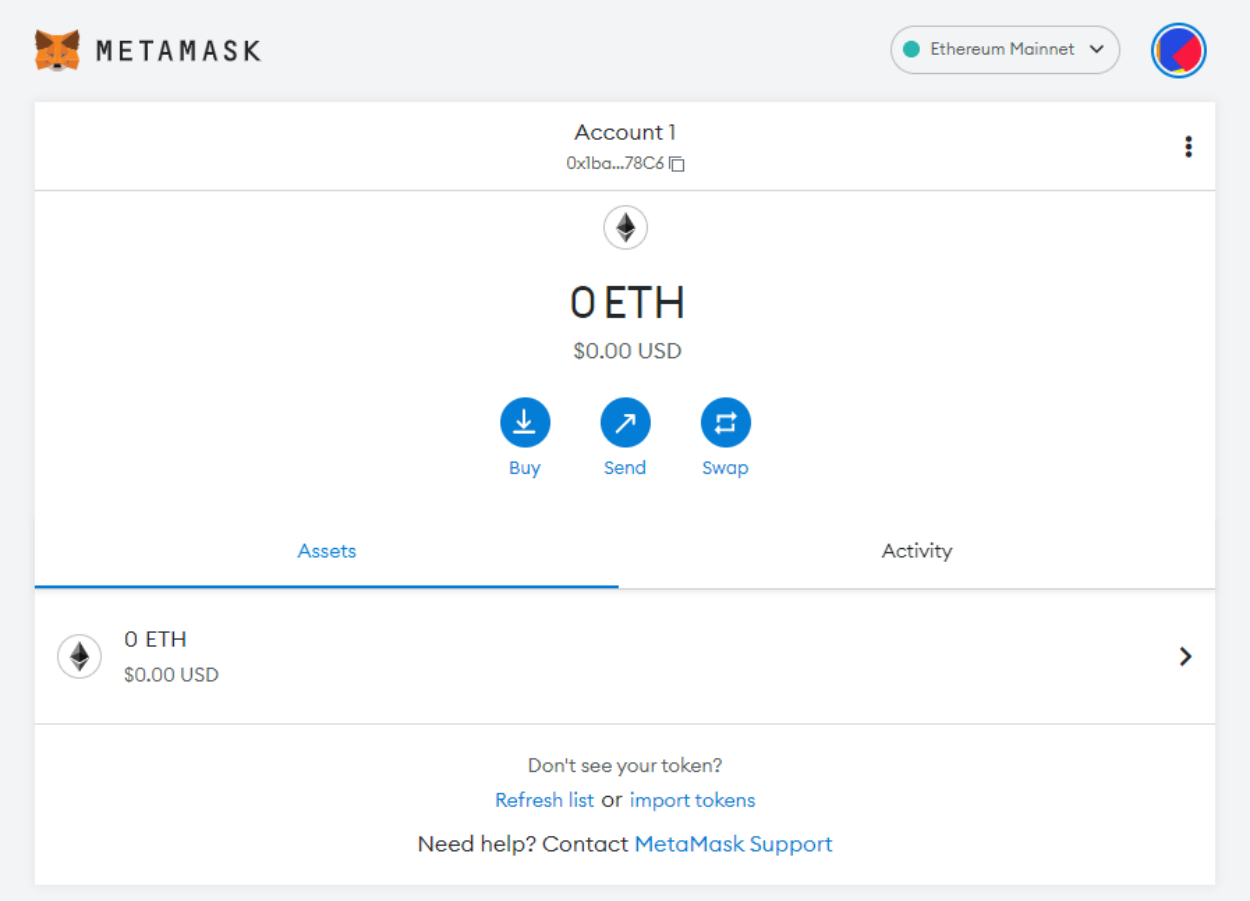


A secret revcovery phrase is given during the account creation and which is unique for every account, store the recovery phase securely.

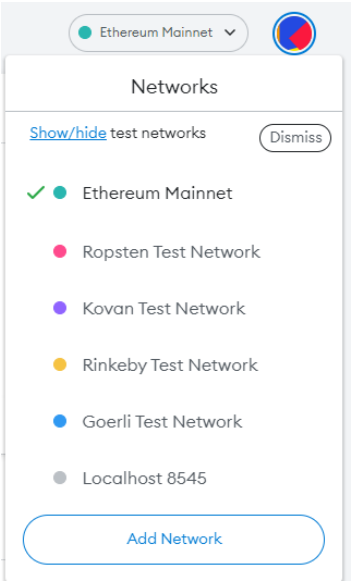

METAMASK
< Back
Secret Recovery Phrase
Your Secret Recovery Phrase makes it easy to back up and restore your account.
WARNING: Never disclose your Secret Recovery Phrase. Anyone with this phrase can take your Ether forever.
CLICK HERE TO REVEAL SECRET WORDS
Remind me later
Next
Tips:
Store this phrase in a password manager like 1Password.
Write this phrase on a piece of paper and store in a secure location. If you want even more security, write it down on multiple pieces of paper and store each in 2 - 3 different locations.
Memorize this phrase.
Download this Secret Recovery Phrase and keep it stored safely on an external encrypted hard drive or storage medium.


METAMASK
Congratulations
You passed the test - keep your Secret Recovery Phrase safe, it's your responsibility!
Tips on storing it safely
• Save a backup in multiple places.
• Never share the phrase with anyone.
• Be careful of phishing! MetaMask will never spontaneously ask for your Secret Recovery Phrase.
• If you need to back up your Secret Recovery Phrase again, you can find it in Settings -> Security.
• If you ever have questions or see something fishy, contact our support here.
*MetaMask cannot recover your Secret Recovery Phrase. Learn more.
All Done

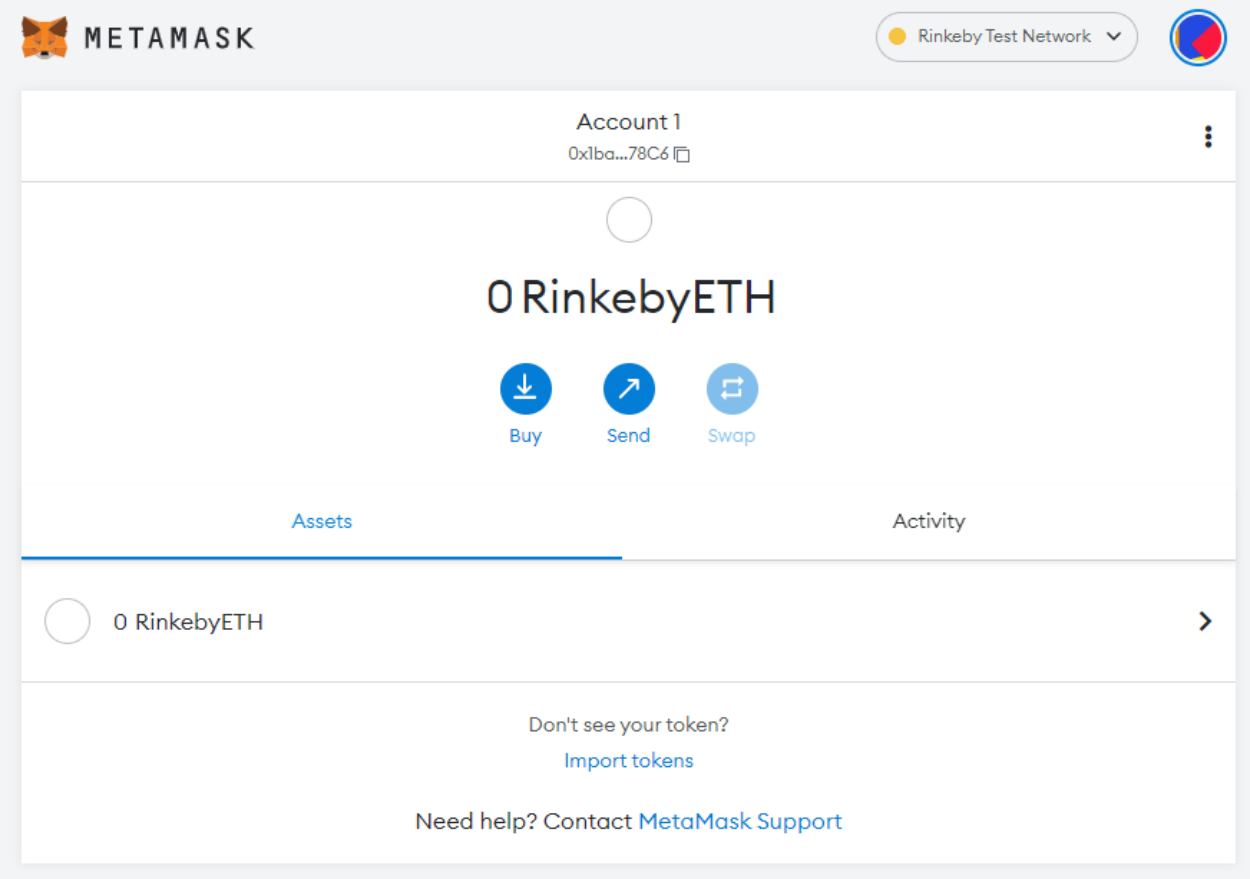
After the wallet is created home page will show the amount of cryptocurrency available in the wallet, account adress, activity and assets associated with the account.



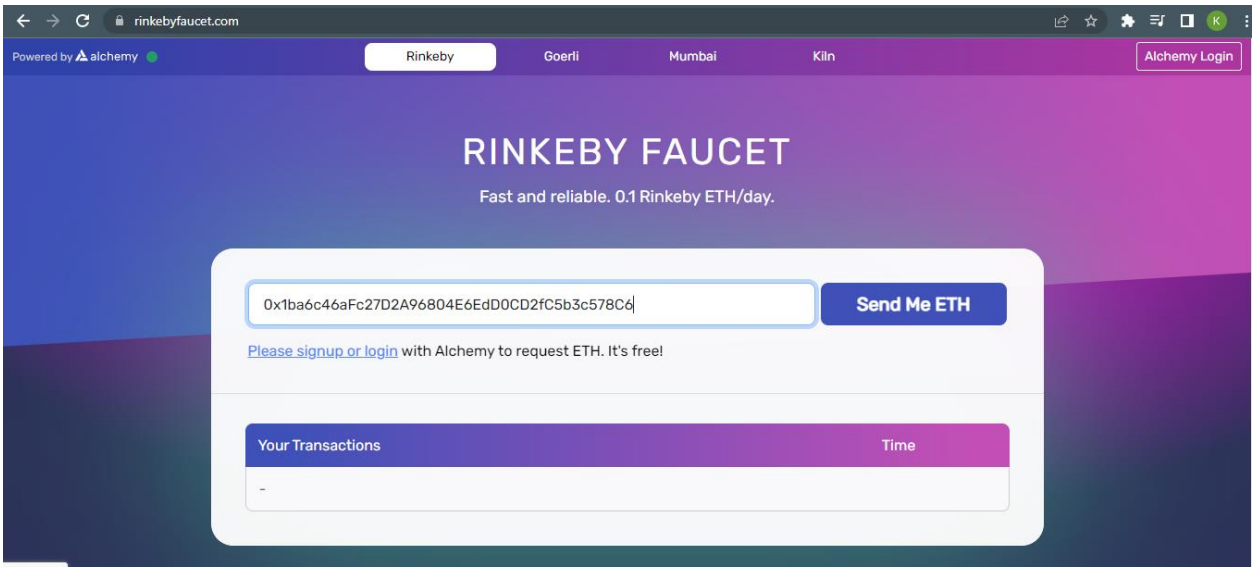
Metamask allows us to own currencies and make transactions on different testnets seen in the drop down menu.

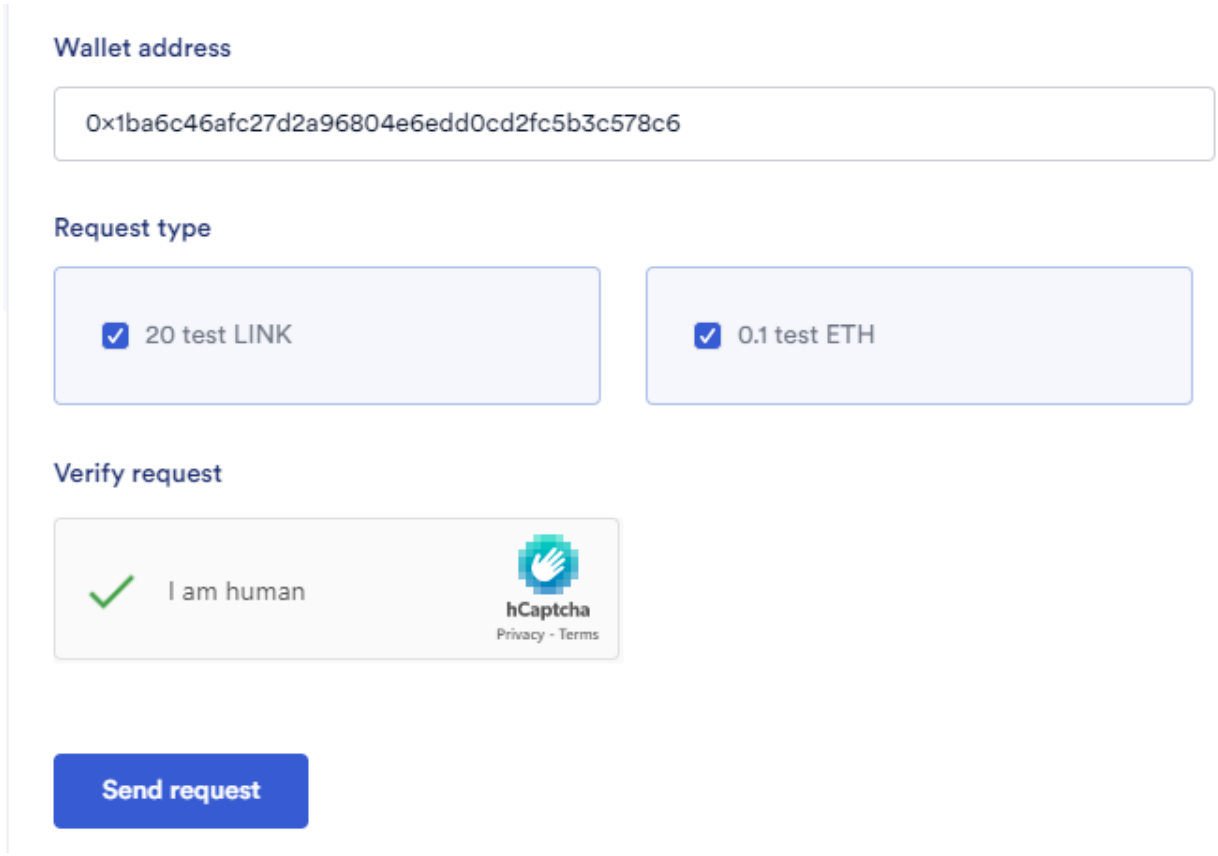


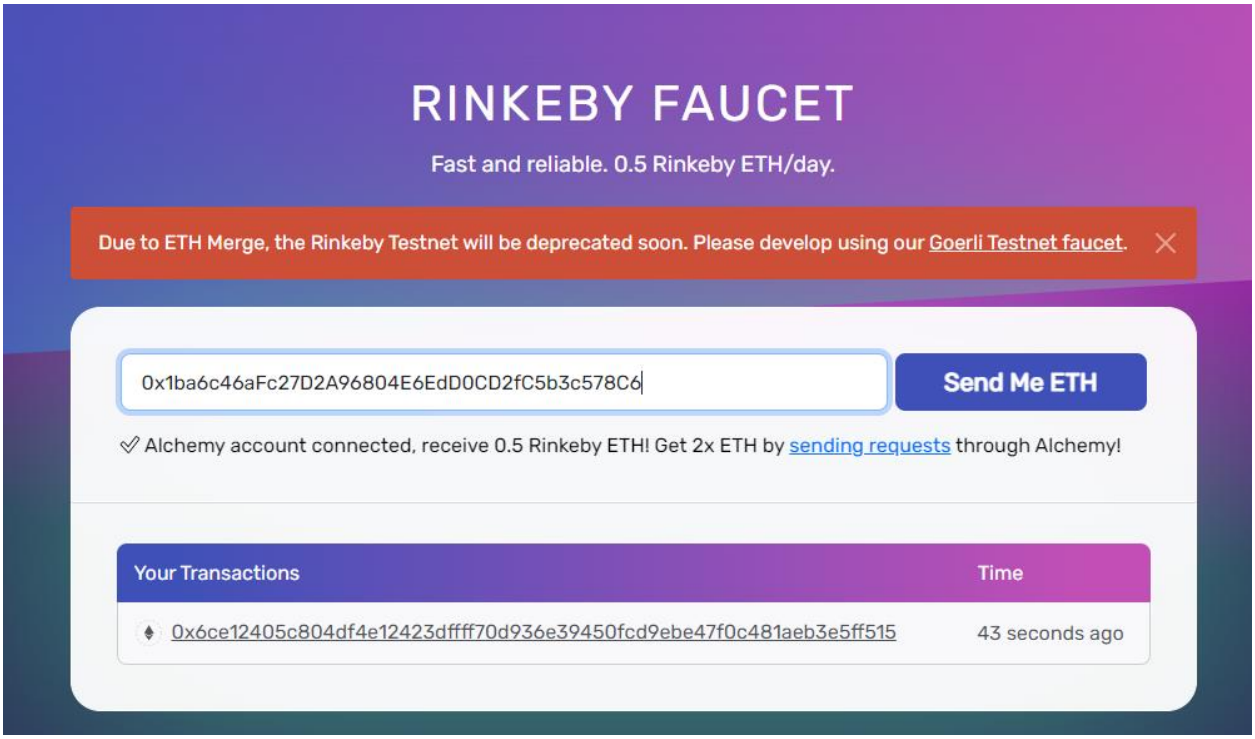
Currencies for the test networks can be obtained using faucets. I have currently 0 ethers in rinkeby but I can obtain the ethers using rinkebyfaucet.

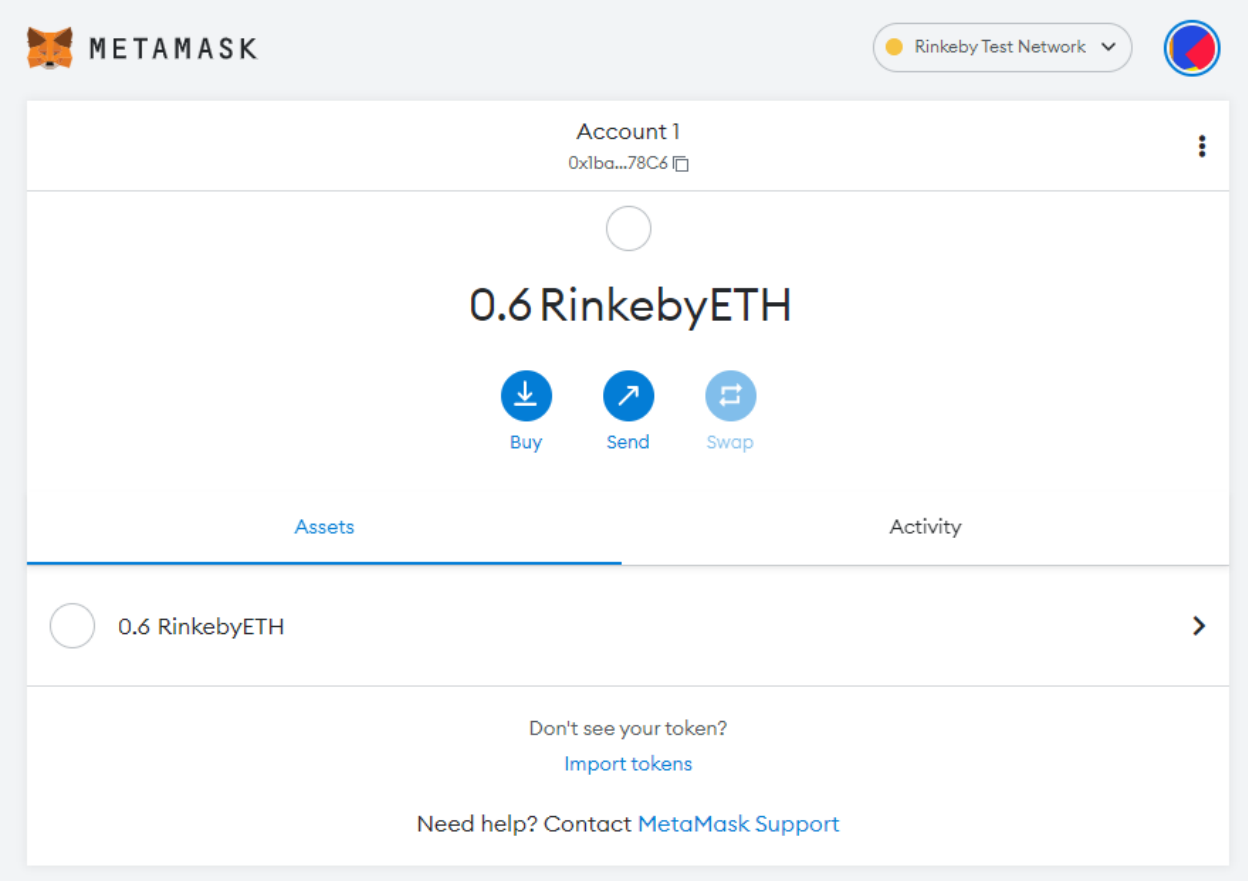


Rinkeby Faucet: We just need to copy our address and paste it to get the test ethers.

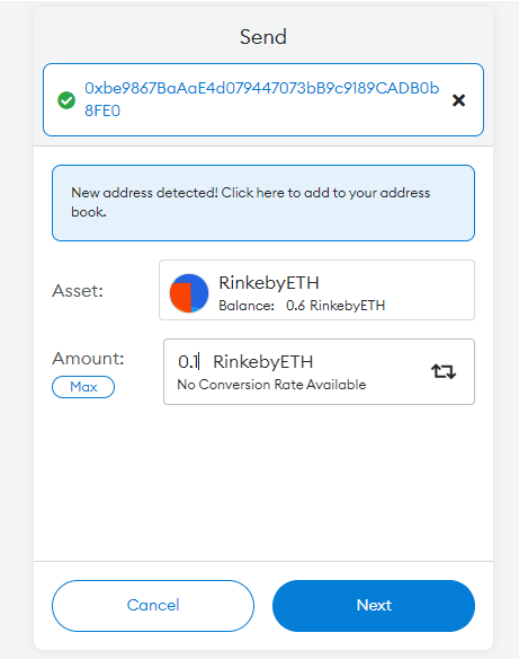


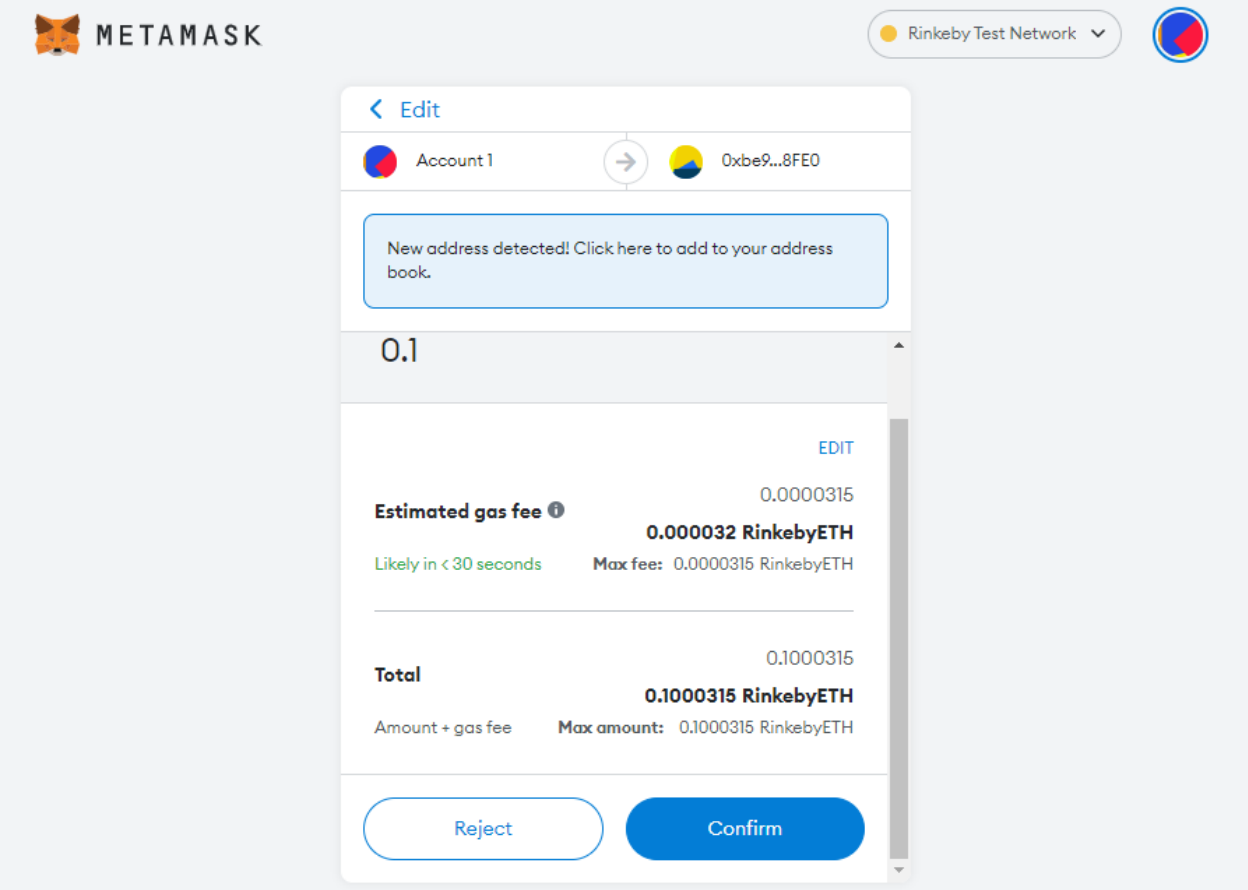

Wallet address
0x1ba6c46afc27d2a96804e6edd0cd2fc5b3c578c6
Request type
20 test LINK
0.1 test ETH
Verify request
I am human
hCaptcha
Privacy - Terms
Send request

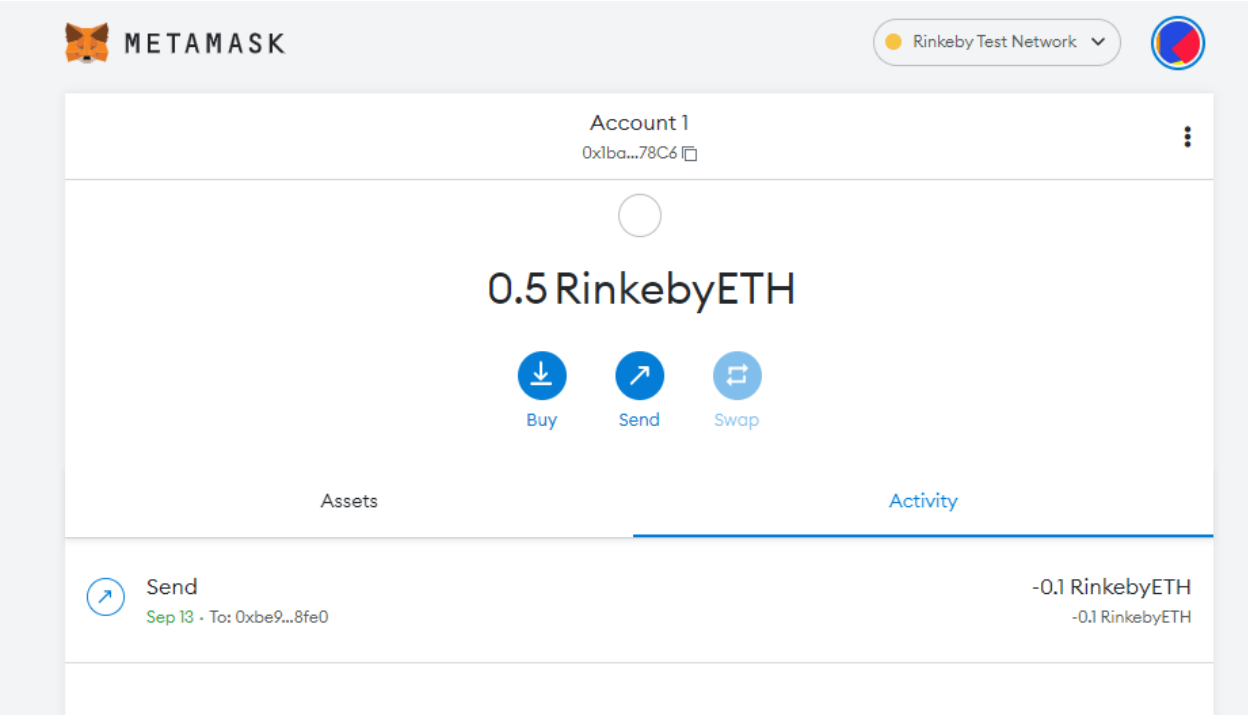

RINKEBY FAUCET
Fast and reliable. 0.5 Rinkeby ETH/day.
Due to ETH Merge, the Rinkeby Testnet will be deprecated soon. Please develop using our Goerli Testnet faucet.
0x1ba6c46aFc27D2A96804E6EdD0CD2fC5b3c578C6
Send Me ETH
Alchemy account connected, receive 0.5 Rinkeby ETH! Get 2x ETH by sending requests through Alchemy!
Your Transactions
Time
0x6ce12405c804df4e12423dffff70d936e39450fcd9ebe47f0c481aeb3e5ff515
43 seconds ago

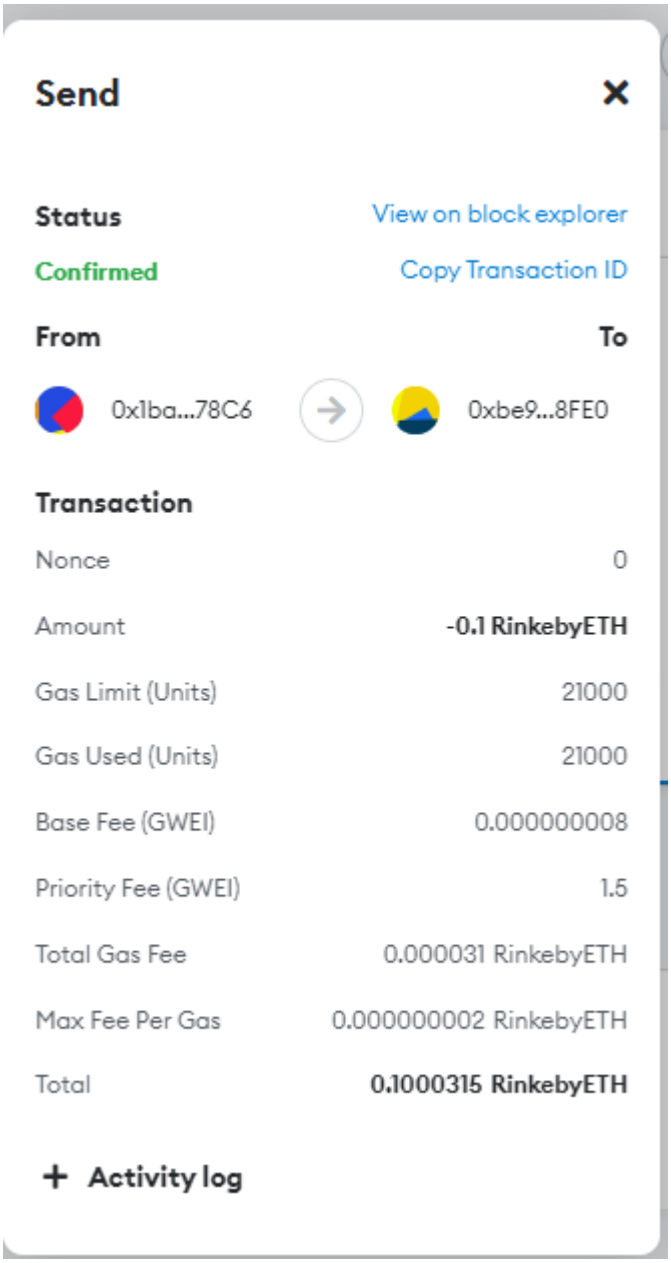


Thus 0.6 rinkeby eth were added to my account by using faucets. This can be used to make transactions to other addresses as well.




METAMASK
Rinkeby Test Network
Edit
Account 1
0xbe9...8FE0
New address detected! Click here to add to your address book.
0.1
EDIT
Estimated gas fee
0.0000315
0.000032 RinkebyETH
Likely in < 30 seconds
Max fee: 0.0000315 RinkebyETH
Total
0.1000315
0.1000315 RinkebyETH
Amount + gas fee
Max amount: 0.1000315 RinkebyETH
Reject
Confirm


METAMASK
Rinkeby Test Network
Account 1
0x1ba...78C6
0.5 RinkebyETH
Buy
Send
Swap
Assets
Activity
Send
Sep 13 · To: 0xbe9...8fe0
-0.1 RinkebyETH
-0.1 RinkebyETH



Thus 0.1 RinkebyETH has been sent from my account to another address.

Conclusion:-

Understood the important concepts used in blockchain by performing demonstrations and explored and analysed blocks, structure and statistics of existing blockchain implementations such as Bitcoin and Ethereum using their respective block explorers. Also understood use of testnets and performed transactions on it using metamask wallets.

Virtual labs:

Virtual lab 1

Three Pillars of Blockchain

Aim

In this experiment, the user will learn about Blockchain and its three pillars that are decentralization, transparency & immutability. The simulator will also demonstrate the relation between blocks and chain. Apart from that, he/she will also be able to explain and apply the concepts of blockchain with the help of open and distributed ledger.

Pre Test

What is a blockchain?

- ○ a : A type of cryptocurrency
- ◉ b : A distributed ledger on a peer to peer network
- ○ c : An exchange
- ○ d : A centralized ledger

Who created Bitcoin?

- ○ a : Samsung
- ○ b : John Mcafee
- ◉ c : Satoshi Nakamoto
- ○ d : None of the above

What is a miner?

- ○ a : Computers that validate and process blockchain transactions
- ○ b : A person doing calculations to verify a transaction
- ◉ c : A type of blockchain
- ○ d : An algorithm that predicts the next part of the chain

What is a genesis block?

- ○ a : A famous block that hardcoded a hash of the Book of Genesis onto the blockchain
- ○ b : The 2nd transaction of a blockchain
- ◉ c : The first block of a Blockchain
- ○ d : None of the above

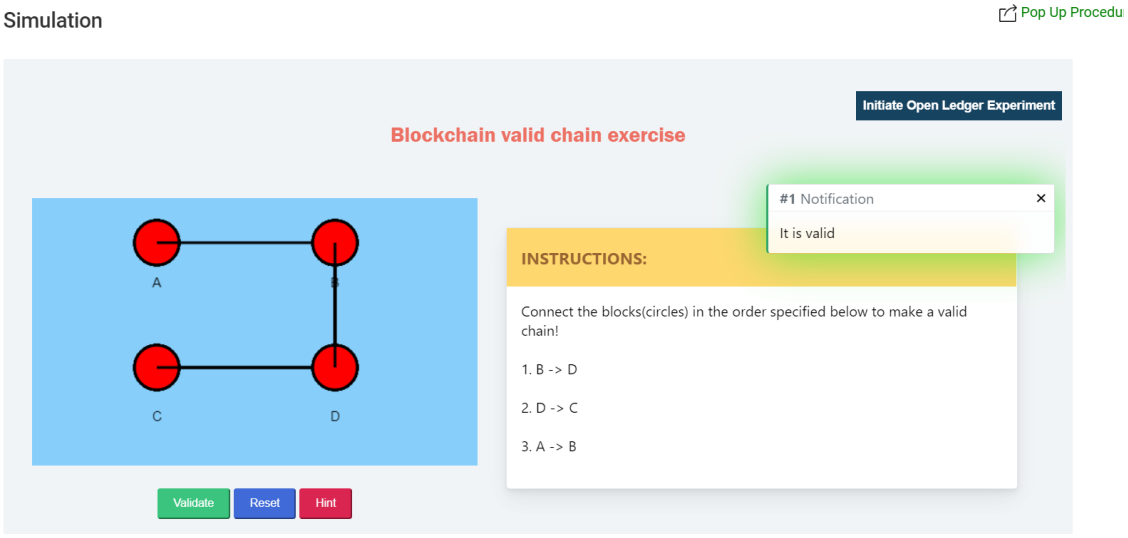
According to the blockchain mechanism, which statement is true?

- ○ a : All the people receive transactions simultaneously
- ○ b : Only the person receives the transaction
- ◉ c : Both are correct
- ○ d : None of these

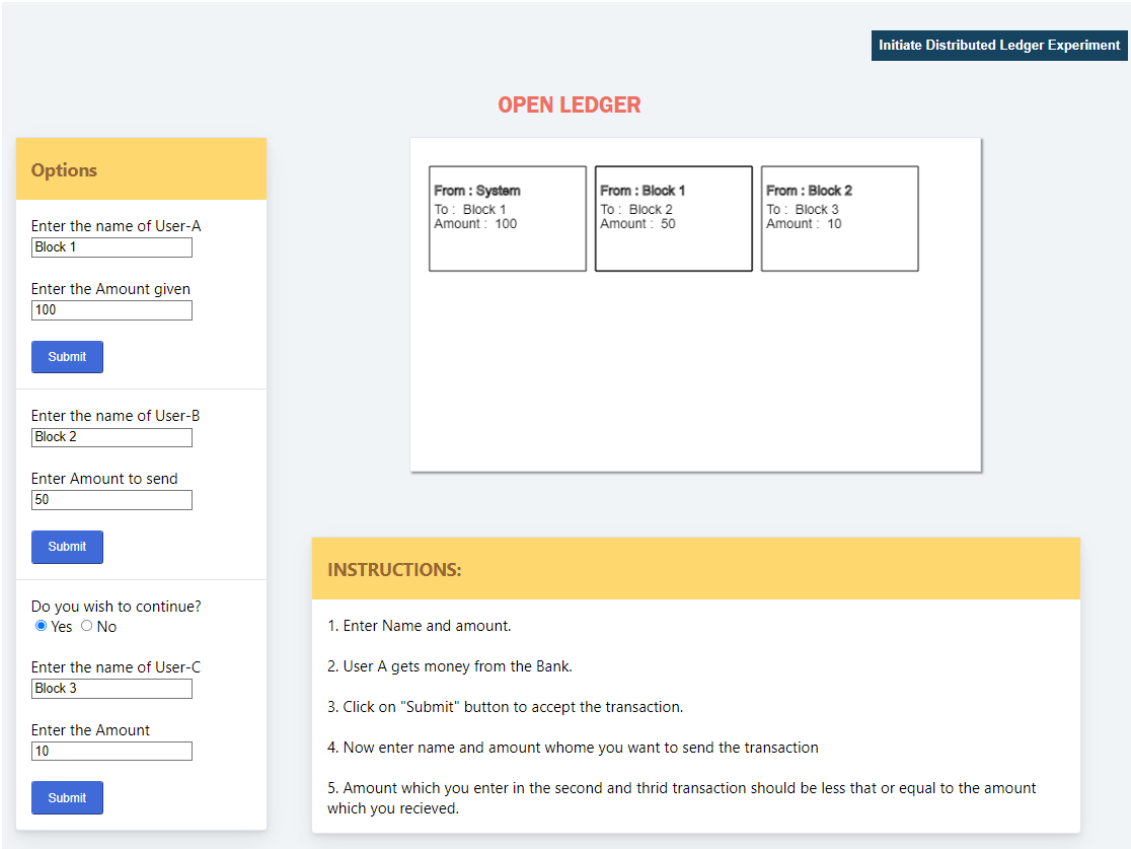
Submit Quiz

5 out of 5

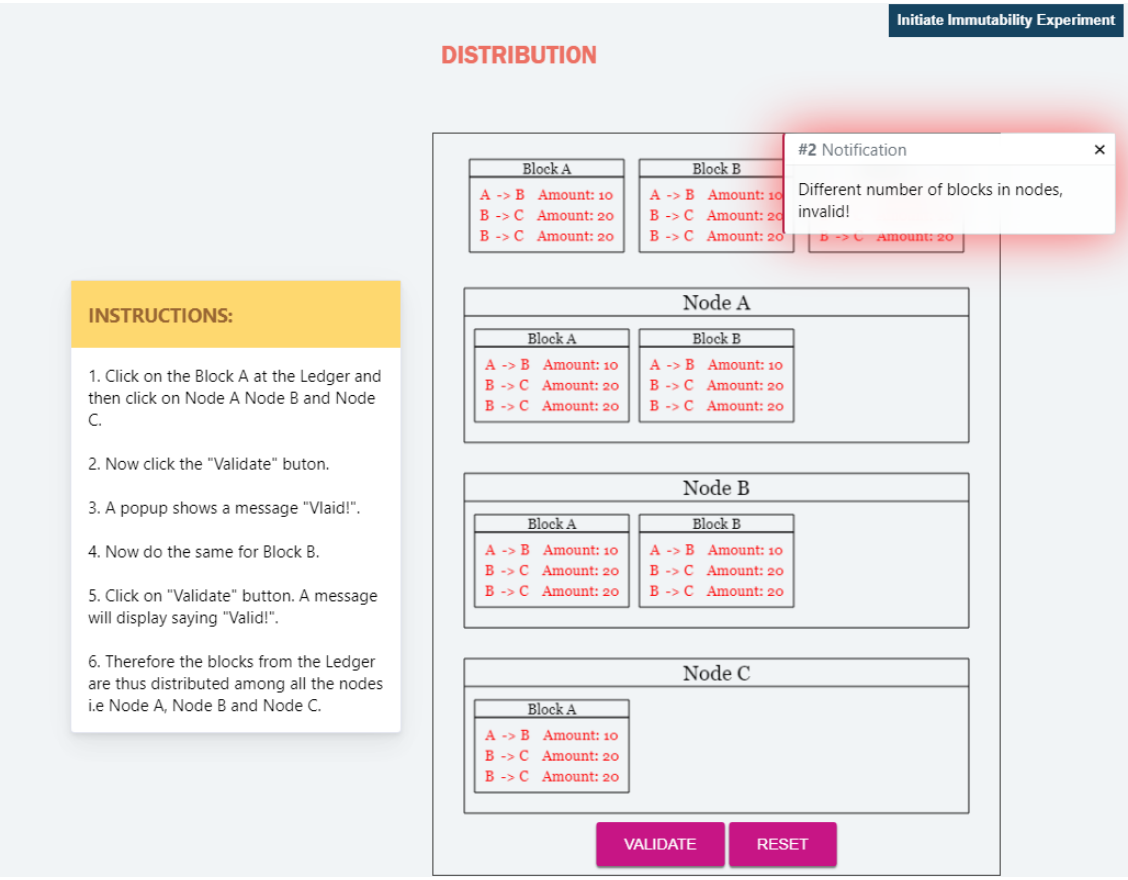
1) Blockchain valid chain:

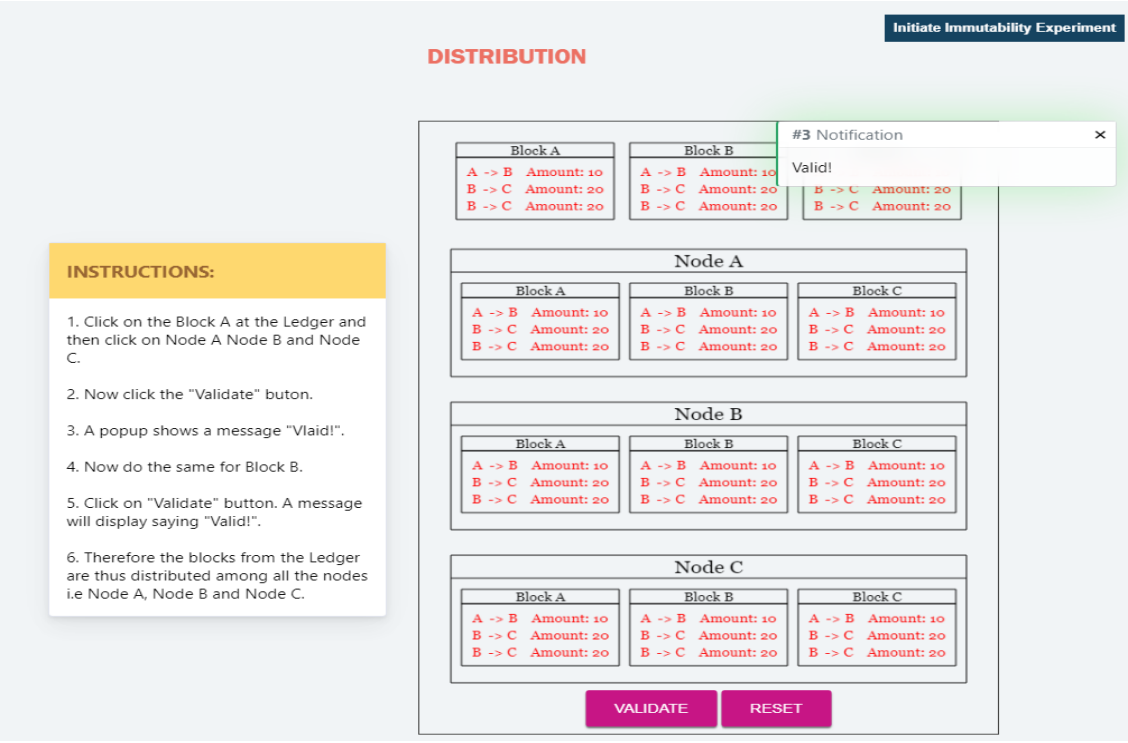


2) Open ledger:

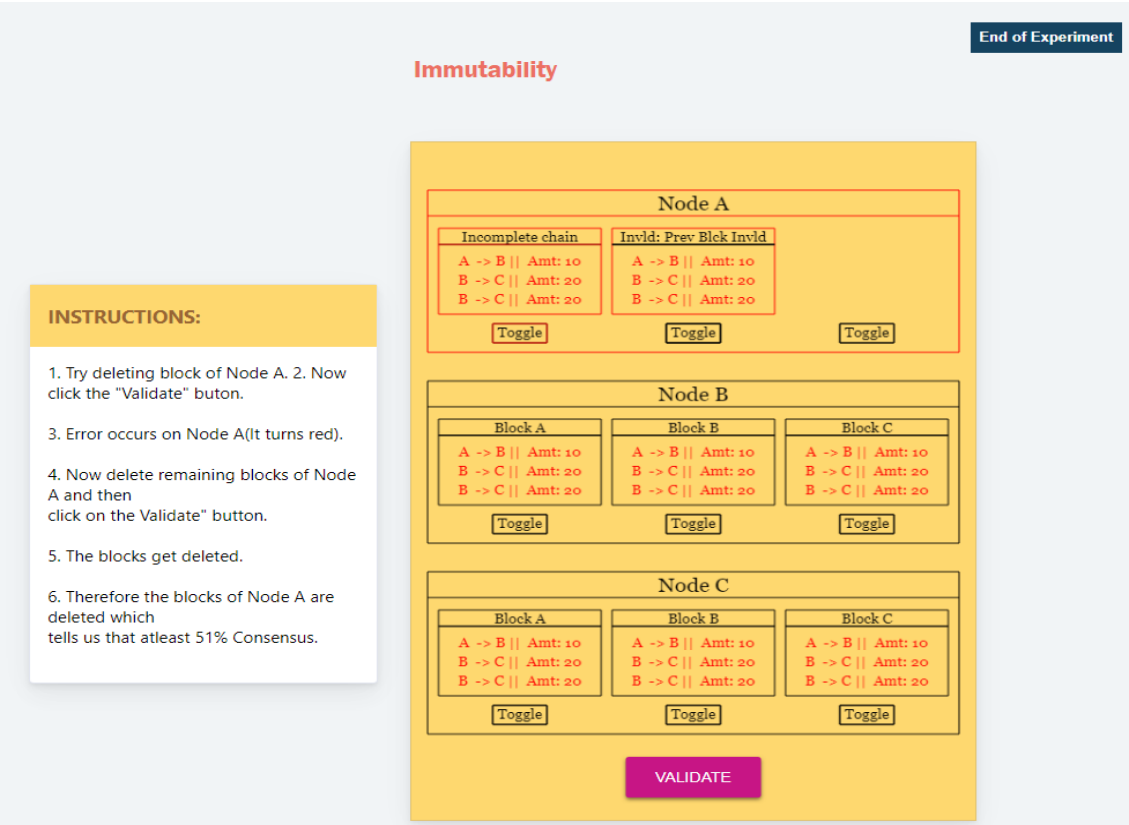


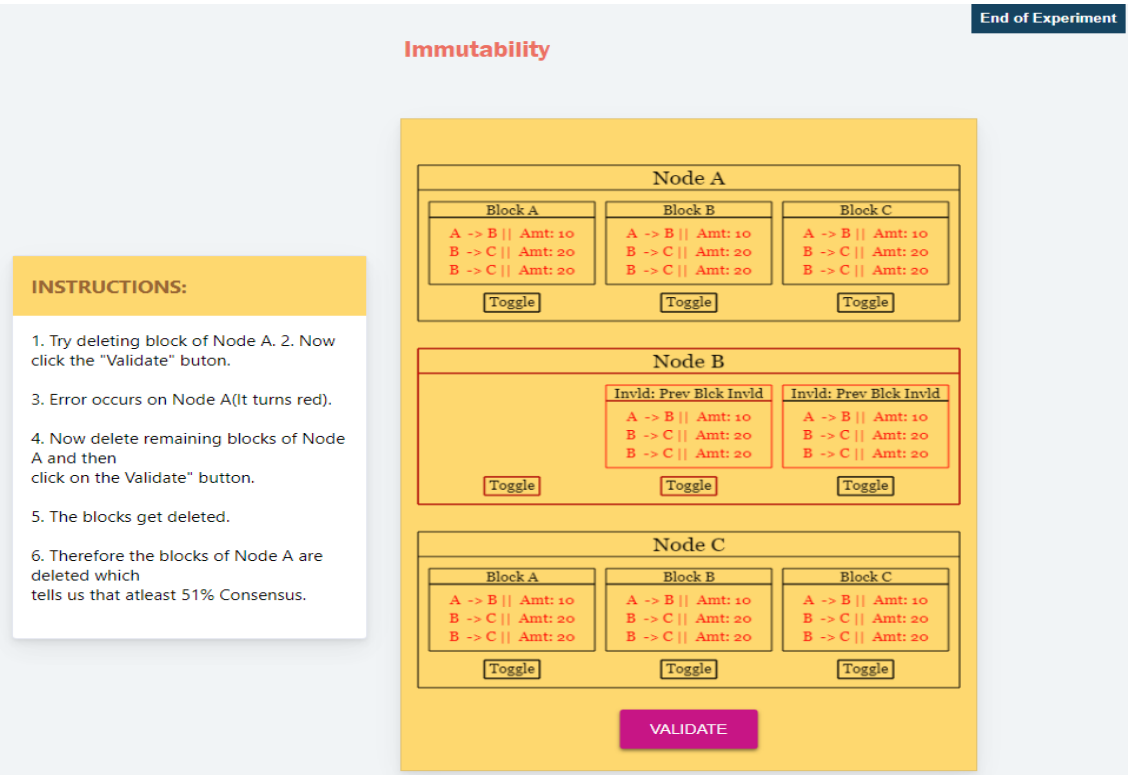
3) Distributed ledger:

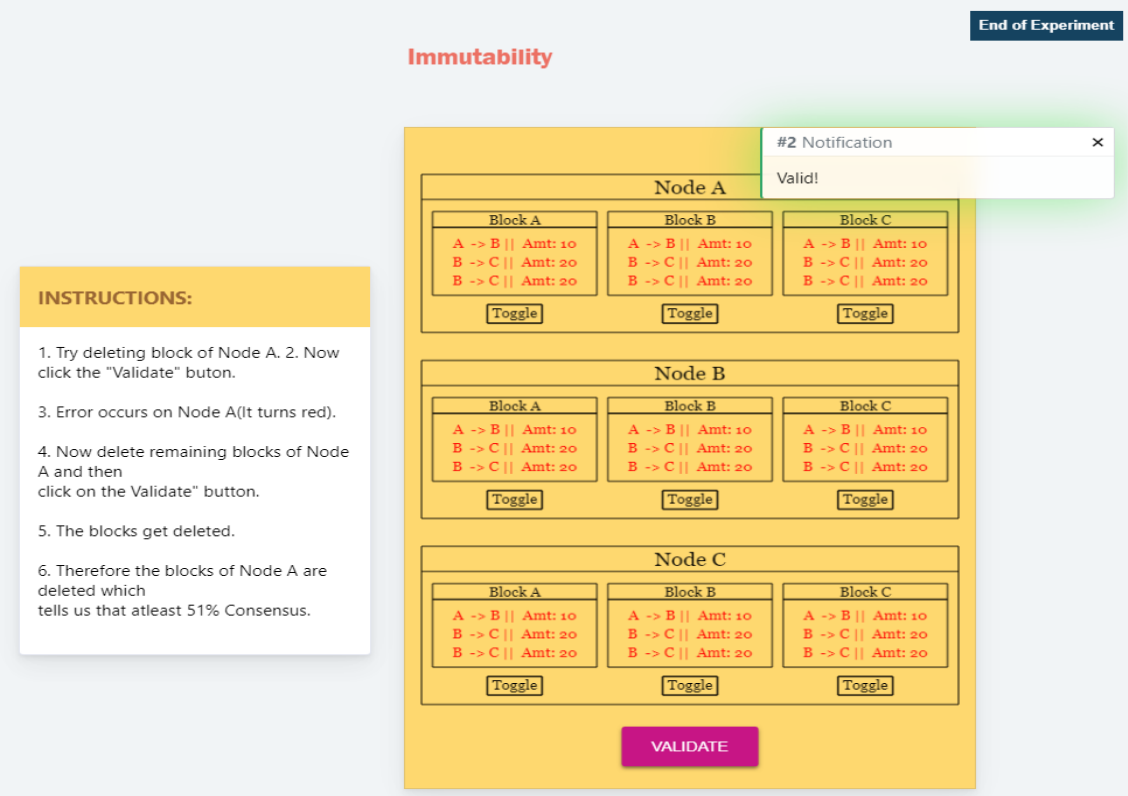




4) Immutability:







Post Test

Which of these statements are true for open ledger?
- a : Every one has copy of ledger.
- b : Ledger can be viewed by anyone.
- c : Ledger is mutable.
- d : None Of these

Which of the following is true for distributed ledger?
- a : Everyone has a copy of ledger
- b : There is one copy of the ledger
- c : Ledger is mutable.
- d : None of these

A miner has completed the mining what will be the next step?
- a : Wait for second miner to complete
- b : Wait for all members to complete
- c : Validate the transaction and add it to the ledger
- d : None of the above

What is not a ledger type in blockchain?
- a : Distributed Ledger
- b : Open Ledger
- c : Both a and b
- d : None of these

How can a user successfully modify a blockchain?
- a : It is immutable
- b : By simply deleting the block
- c : By use of consensus algorithm
- d : None of the above

Submit Quiz

5 out of 5

Virtual lab 2

Mining in Blockchain

Aim

In this experiment, the user will learn about mining in blockchain i.e. how a transaction is validated and added into a blockchain. He/she will learn how the process of hashing helps in validation of a block.He/she will also get to know which miner is rewarded when a block is validated and added to the blockchain.

Pre Test

Which key is used for Asymmetric Cryptography?
- a : Public Key
- b : Private Key
- c : Both public and private keys
- d : None of the above

The full form of SHA is?
- a : Social Hash Algorithm
- b : Secure Hash Algorithm
- c : System Hash Algorithm
- d : None of the above

Which of the following is a full form of P2P?
- a : Peer to Peer
- b : Public key to Public key
- c : Private key to Public key
- d : None of the above

Where can you reserve your cryptocurrrency?
- a : Rerserve Bank of India
- b : Wallet
- c : Compact Disk (CD)
- d : Both (a) and (b)

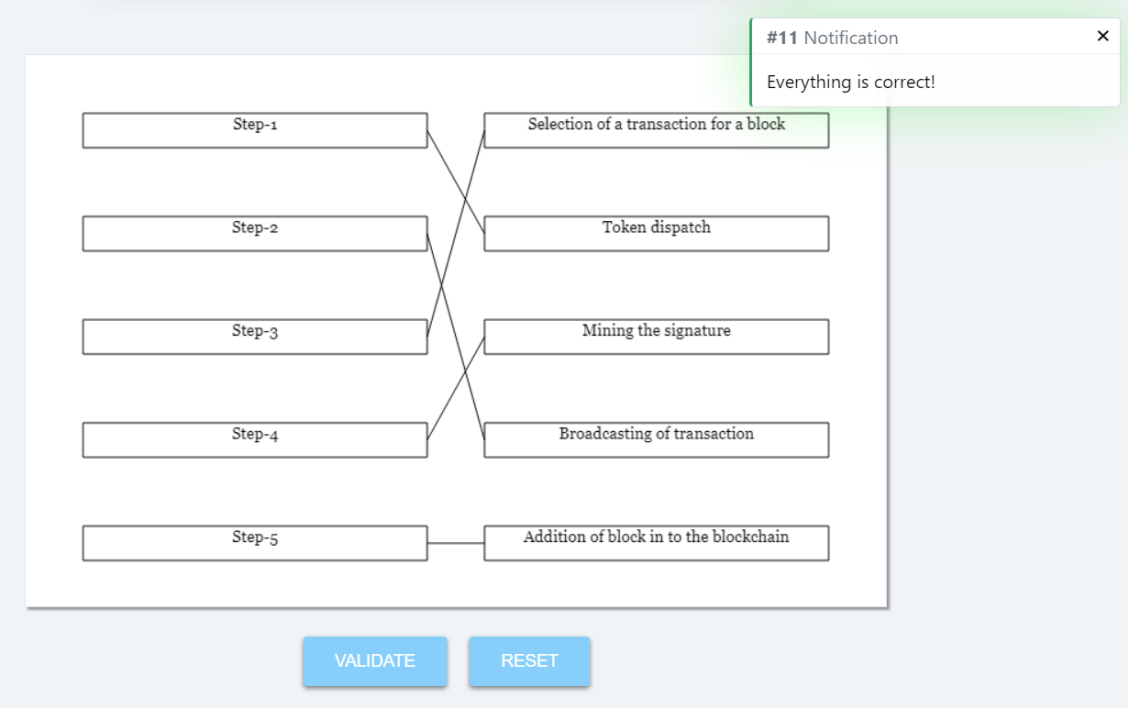
Identify the correct statement?
- a : Blockchain is centralized
- b : Blockchain is mutable
- c : Both a and b
- d : None of these

What is a miner?
- a : A type of blockchain
- b : An algorithm that predicts the next part of the chain
- c : A person doing calculations to verify a transaction
- d : Computers that validate and process blockchain transactions

What is the process of creating new bitcoins popularly known as?
- a : Finding
- b : Panning
- c : Sourcing
- d : Mining

Submit Quiz

7 out of 7



Instructions:

1. Enter the name of User-A(Sender) and User-B(Reciever) to send transaction.

2. Now click on the button "ADD TO BLOCK".

3. The details you entered will appear on the block.

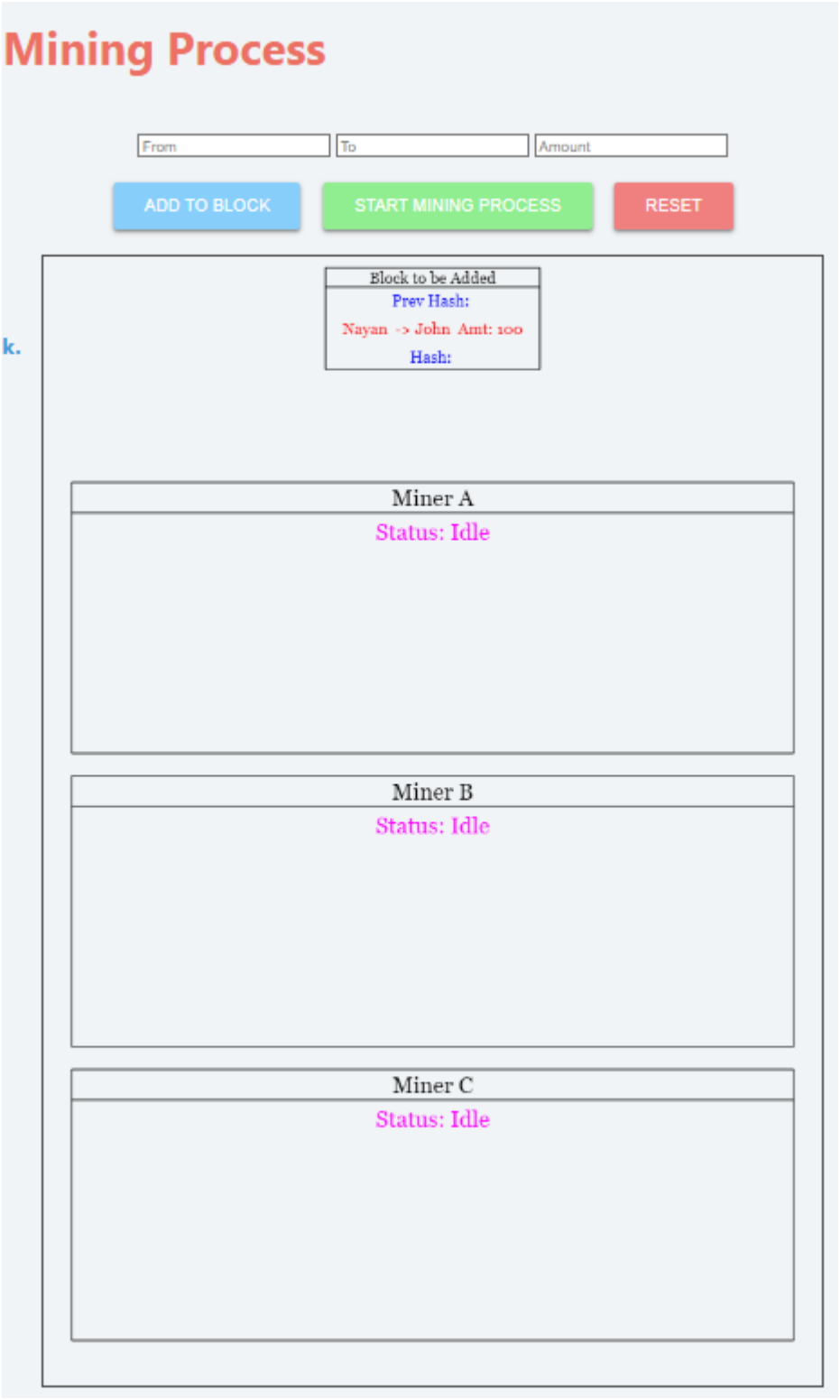
4. Now click on the button "START MINING PROCESS".

5.Mining process will start. Miner A,Miner B and Miner C will start calculating the proper Hash .

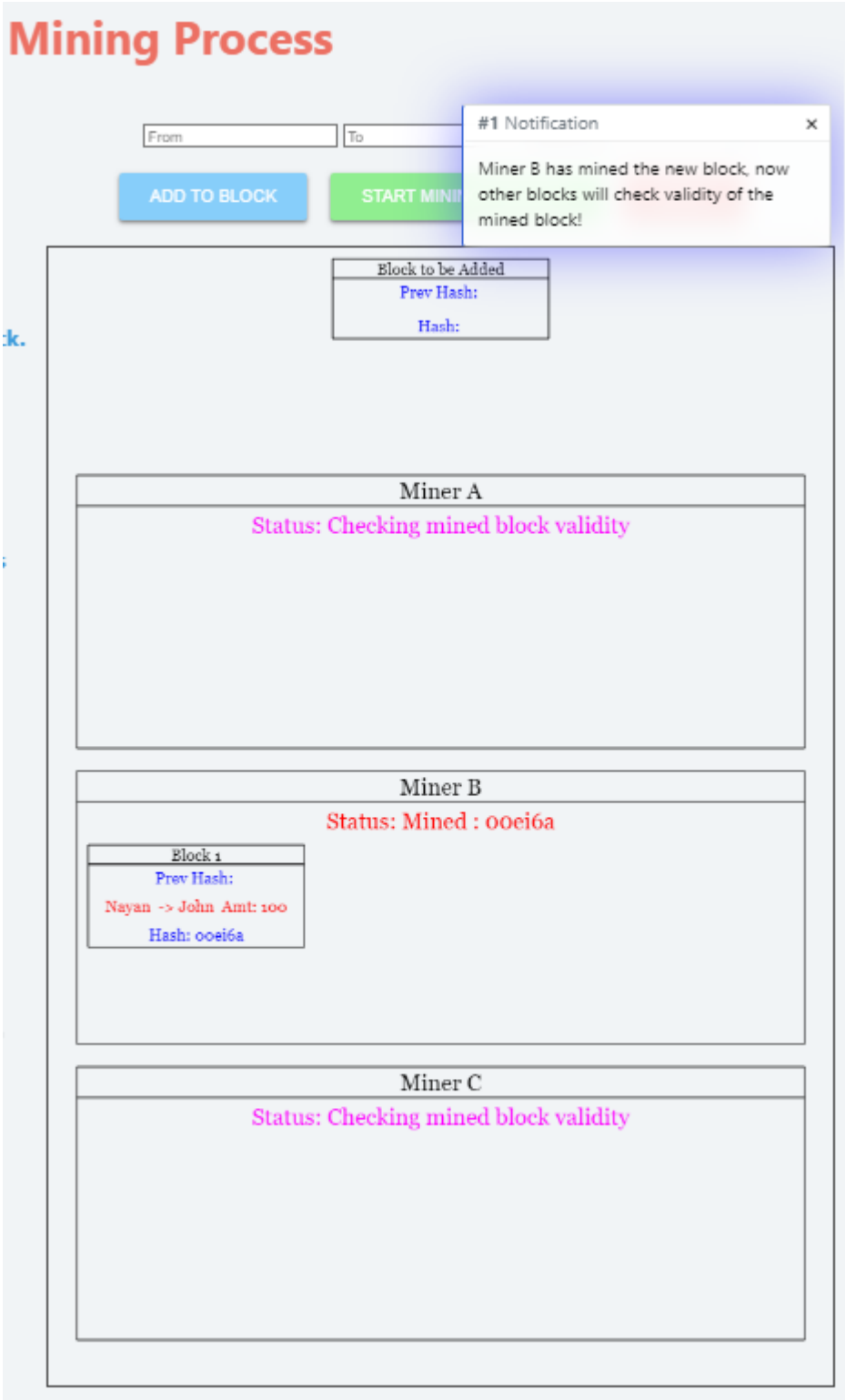
6.One of the miner completes the mining process and other miners confirm the hash calculated.

7. Click on "RESET" button to do the experiment again.

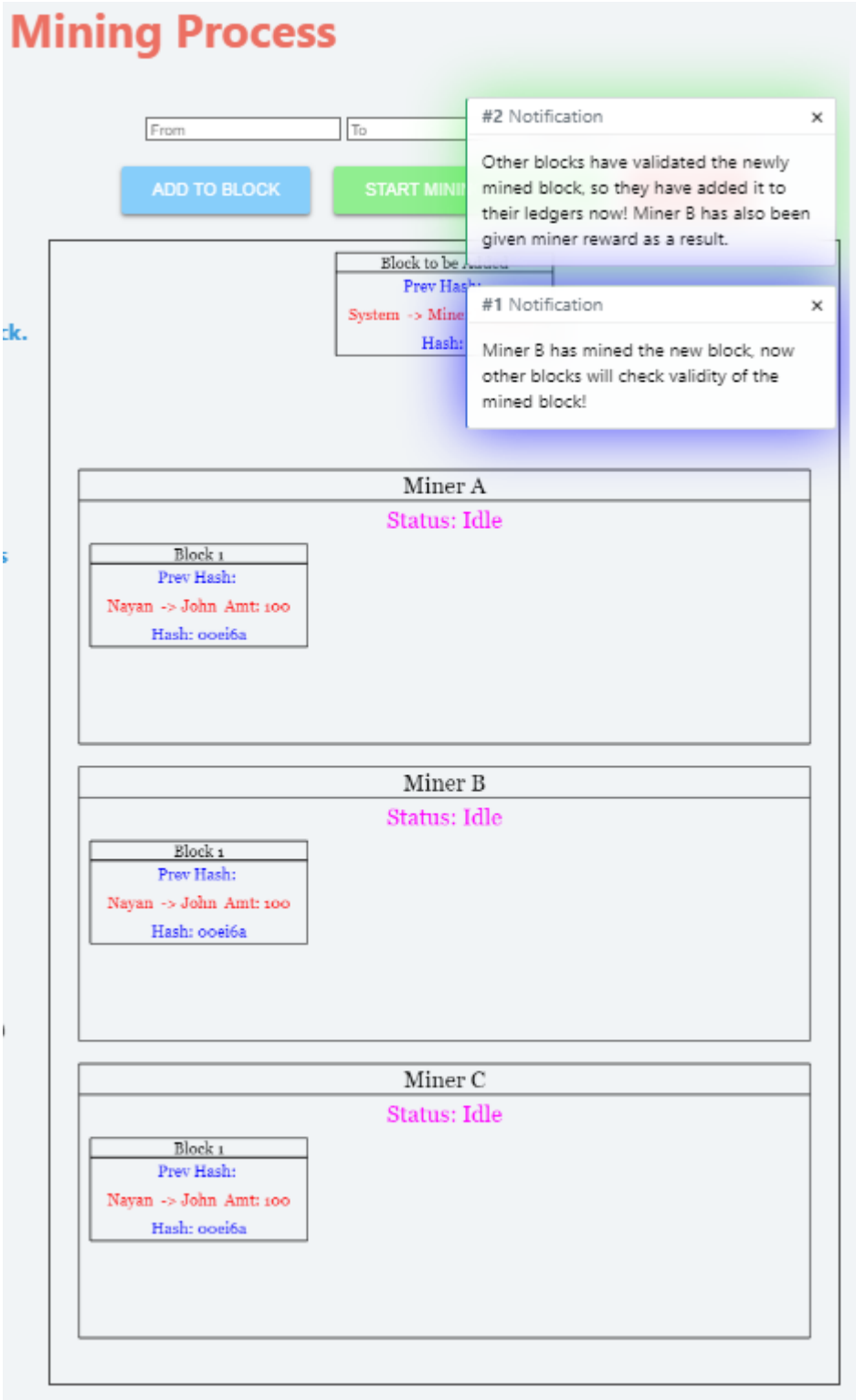
Before mining:



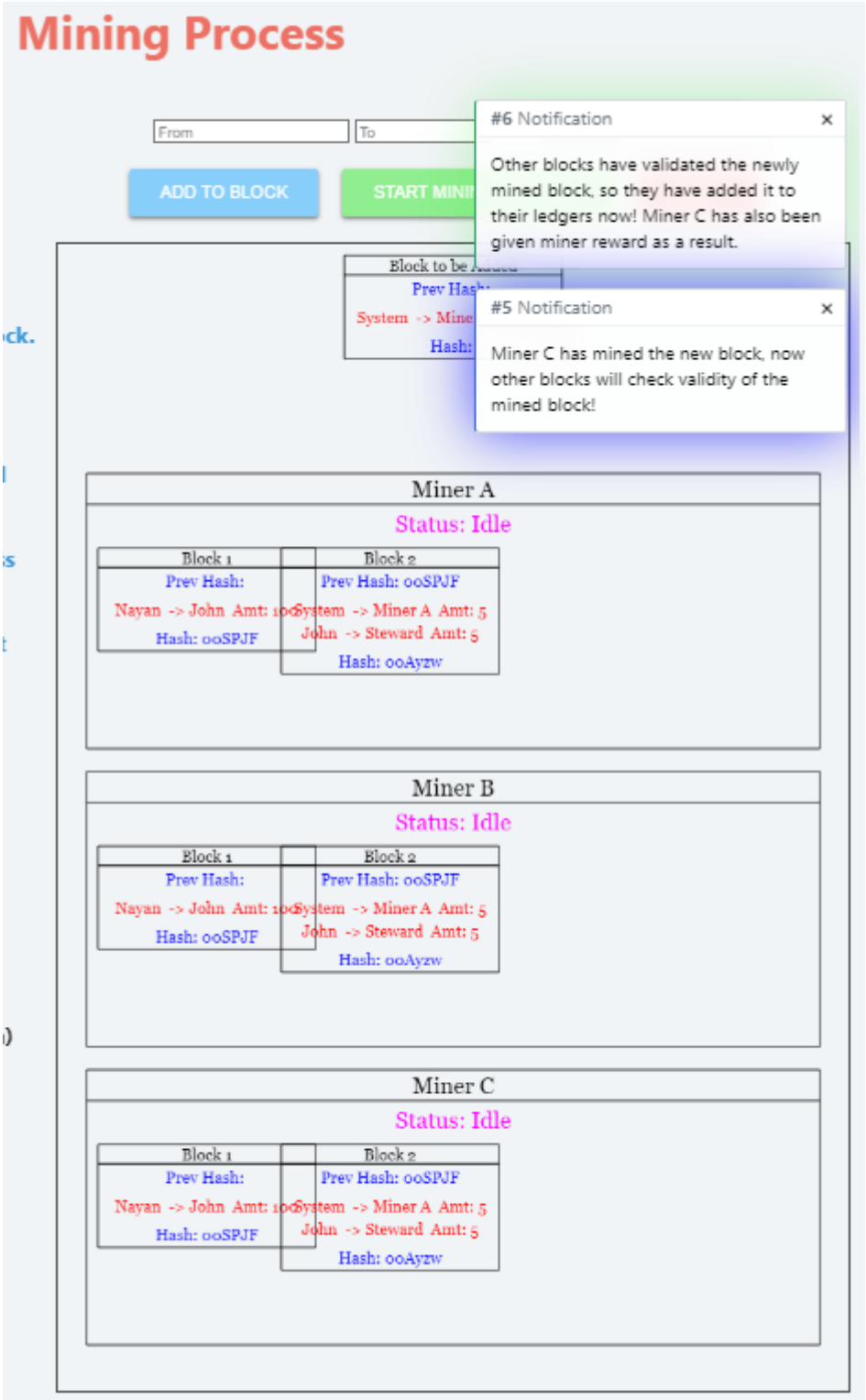
After mining (hash calculated by one of the miners):

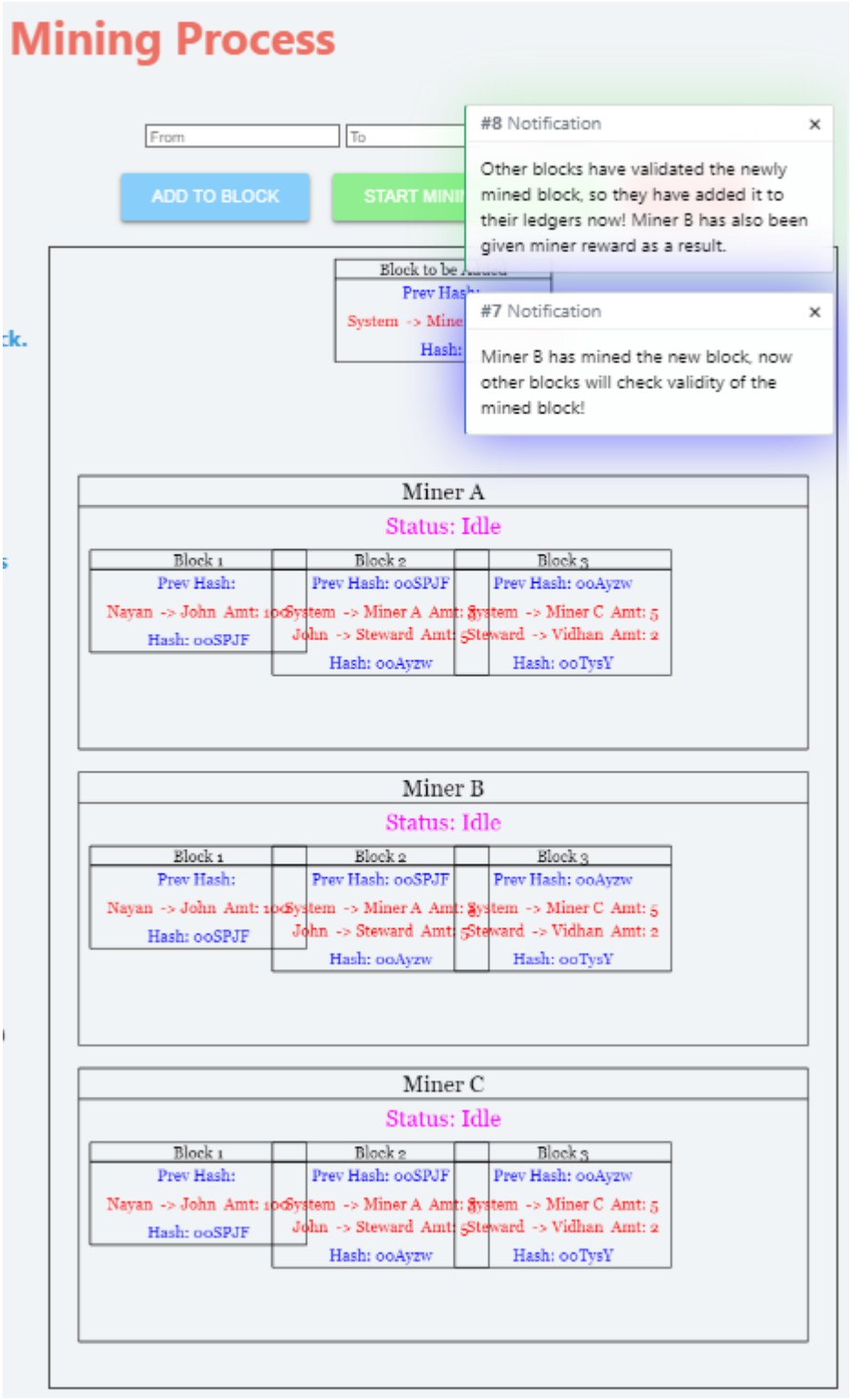


After mining (block published to all):



Another transaction:




Mining Process
From
To
ADD TO BLOCK
START MINI
#8 Notification
Other blocks have validated the newly mined block, so they have added it to their ledgers now! Miner B has also been given miner reward as a result.
#7 Notification
Miner B has mined the new block, now other blocks will check validity of the mined block!
Block to be
Prev Hash:
System -> Mine
Hash:
Miner A
Status: Idle
Block 1
Prev Hash:
Nayan -> John Amt: 10
Hash: ooSPJF
Block 2
Prev Hash: ooSPJF
System -> Miner A Amt: 5
John -> Steward Amt: 5
Hash: ooAyzw
Block 3
Prev Hash: ooAyzw
System -> Miner C Amt: 5
Steward -> Vidhan Amt: 2
Hash: ooTysY
Miner B
Status: Idle
Block 1
Prev Hash:
Nayan -> John Amt: 10
Hash: ooSPJF
Block 2
Prev Hash: ooSPJF
System -> Miner A Amt: 5
John -> Steward Amt: 5
Hash: ooAyzw
Block 3
Prev Hash: ooAyzw
System -> Miner C Amt: 5
Steward -> Vidhan Amt: 2
Hash: ooTysY
Miner C
Status: Idle
Block 1
Prev Hash:
Nayan -> John Amt: 10
Hash: ooSPJF
Block 2
Prev Hash: ooSPJF
System -> Miner A Amt: 5
John -> Steward Amt: 5
Hash: ooAyzw
Block 3
Prev Hash: ooAyzw
System -> Miner C Amt: 5
Steward -> Vidhan Amt: 2
Hash: ooTysY

Post Test

Which statement is correct?

- a : Mining is a process of adding transactions in a ledger
- b : SHA-256 is the only cryptographic algorithm used in blockchain
- c : Both a and b
- d : None Of the above

Which is not an advantage of blockchain technology?

- a : Anonymity & Privacy
- b : Mutability
- c : Low transaction cost
- d : Digital freedom and decntralization

Initial miner has completed the mining process, what will be the next step?

- a : Wait for the next miner to complete
- b : Terminate the process
- c : Validate the transaction and add it to the ledger
- d : None of the above

Which of the following listed is not involved in mining?

- a : Hash Value
- b : Hash function
- c : Sender and Reciever
- d : None of the above

Which statement is not correct?

- a : Mining is not done in blockchain
- b : Ledger is related to the process of mining
- c : Both a and b
- d : None of the above

The block in the blockchain consist of?

- a : A hash pointer to the previous block
- b : Timestamp
- c : List of transactions
- d : All of the above

The main advantage of immutability is_____.

- a : Scalability
- b : Improved Security
- c : Tamper Proof
- d : Increased Efficiency

Submit Quiz

7 out of 7

Virtual lab 3

Proof of Work (PoW) & Proof of Stake (PoS)

Aim

In this experiment, the user will learn about Proof of Stake and Proof of Work. The simulator will demonstrate the working of both these algorithms by one short example of each concept. Apart from that, he/she will also be able to recall concepts with the help of a Fill in the Blanks exercise.

Pre Test

Which statement is not correct?

- a : Mining is related to PoW
- b : Mining is related to PoS
- c : PoS is an alternative to PoW
- d : None of the above

Which statement are correct?

- a : Ledger is a component of Mining
- b : Ledger is not a concept of Mining
- c : Hashing is related to ledger
- d : PoW is Proof of work

How mining is done?

- a : Through Hashing
- b : Through Adding to blocks, Hashing
- c : Through Adding of blocks, Hash of current block, Hash of Previous block
- d : None of the above

Full form of PoS is?

- a : Privacy of Stake
- b : Proof of Stack
- c : Proof of Stake
- d : None of the above

Pillars of blockchain are?

- a : Centralization, Mutability, Transparency
- b : Decentralization, Immutability, Transparency
- c : Confidentiality, Integrity, availability
- d : None of these

What is a hash?

- a : A type of blockchain
- b : An algorithm that predicts the next part of the chain
- c : Function that convert input string into encrypted output
- d : None of the above

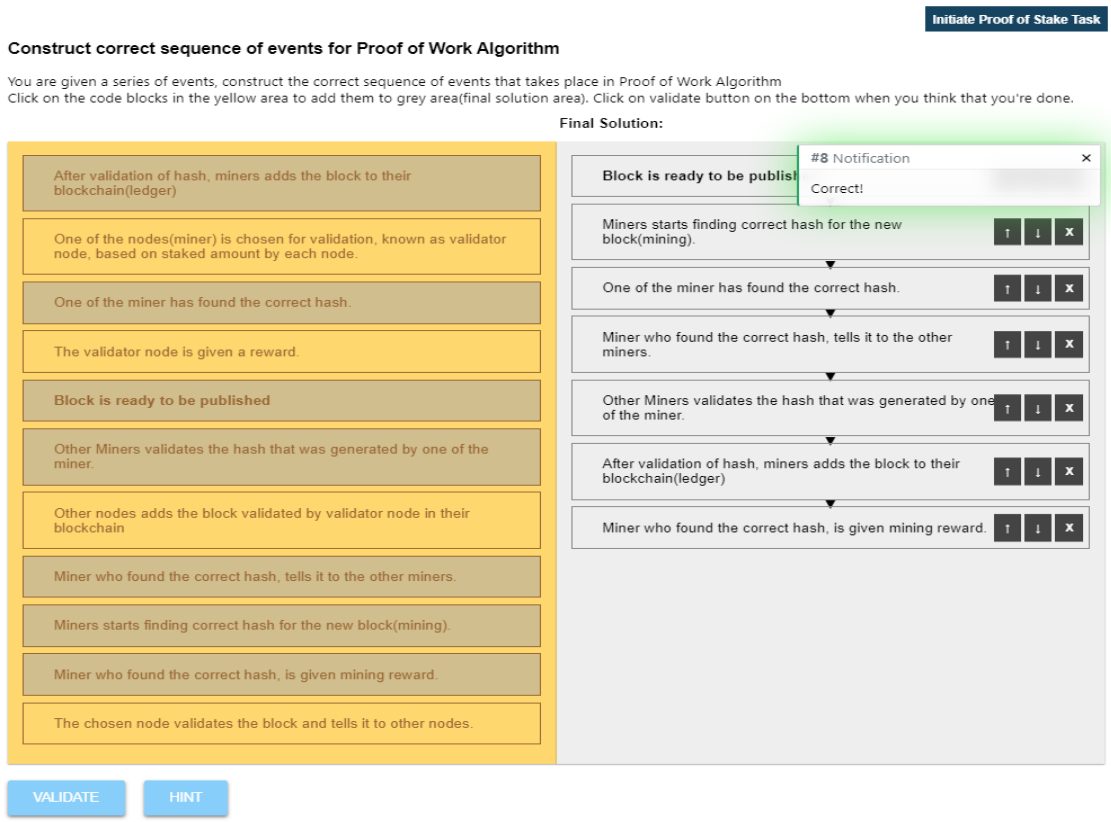
What is the process of creating new bitcoins popularly known as?

- a : Finding
- b : Panning
- c : Mining
- d : None of the above

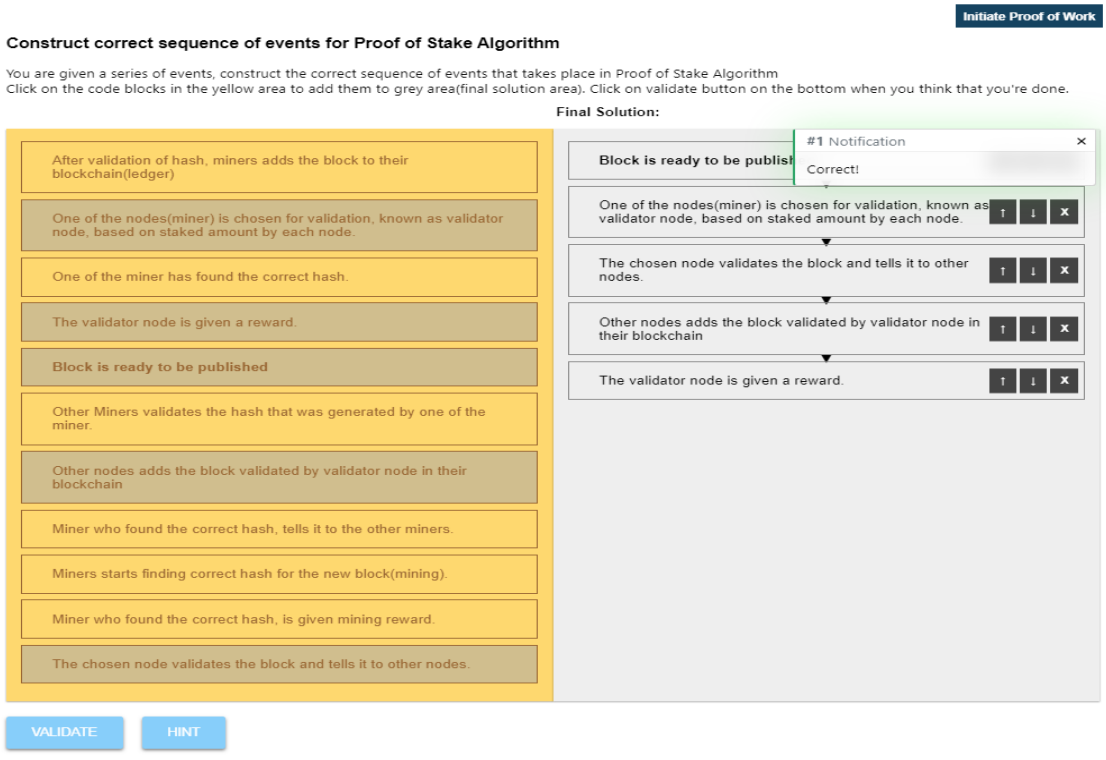
Submit Quiz

7 out of 7

Proof of work puzzle:

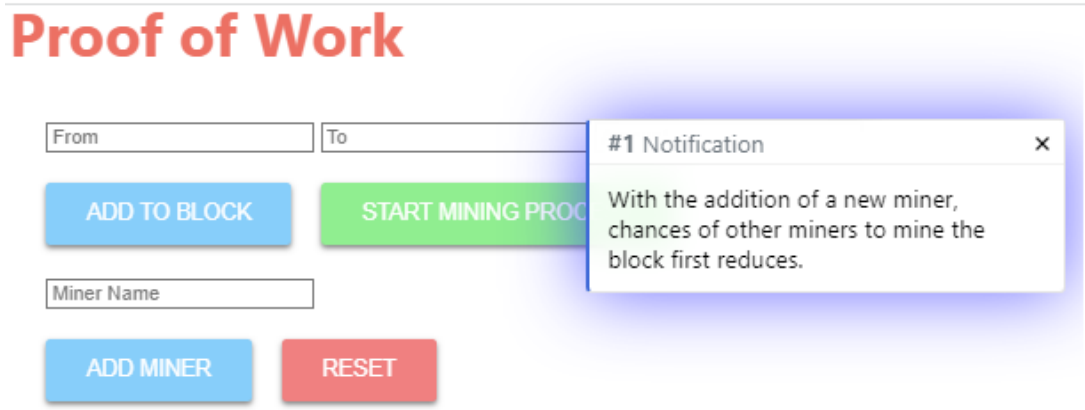


Proof of stake puzzle:

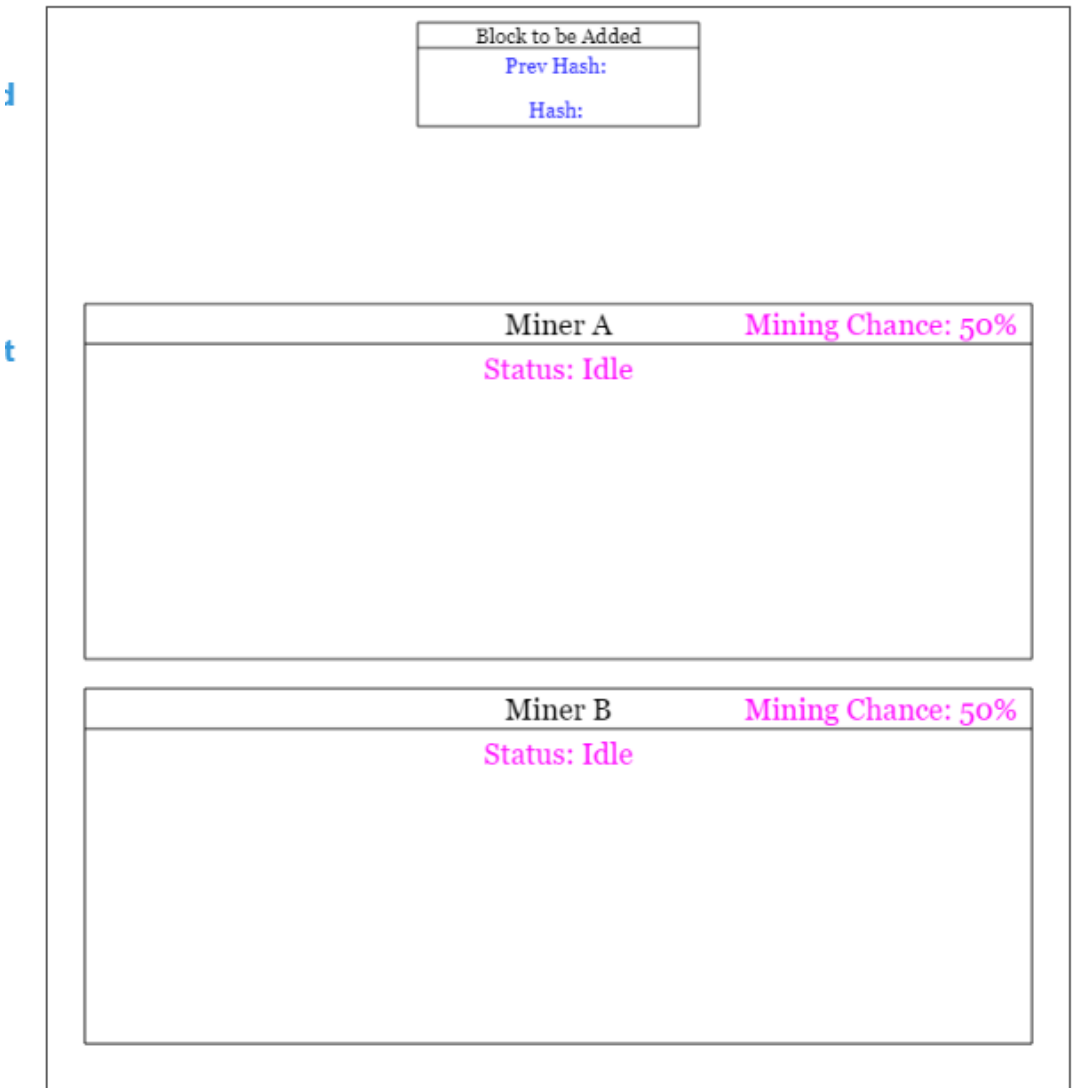


Proof of work activity:

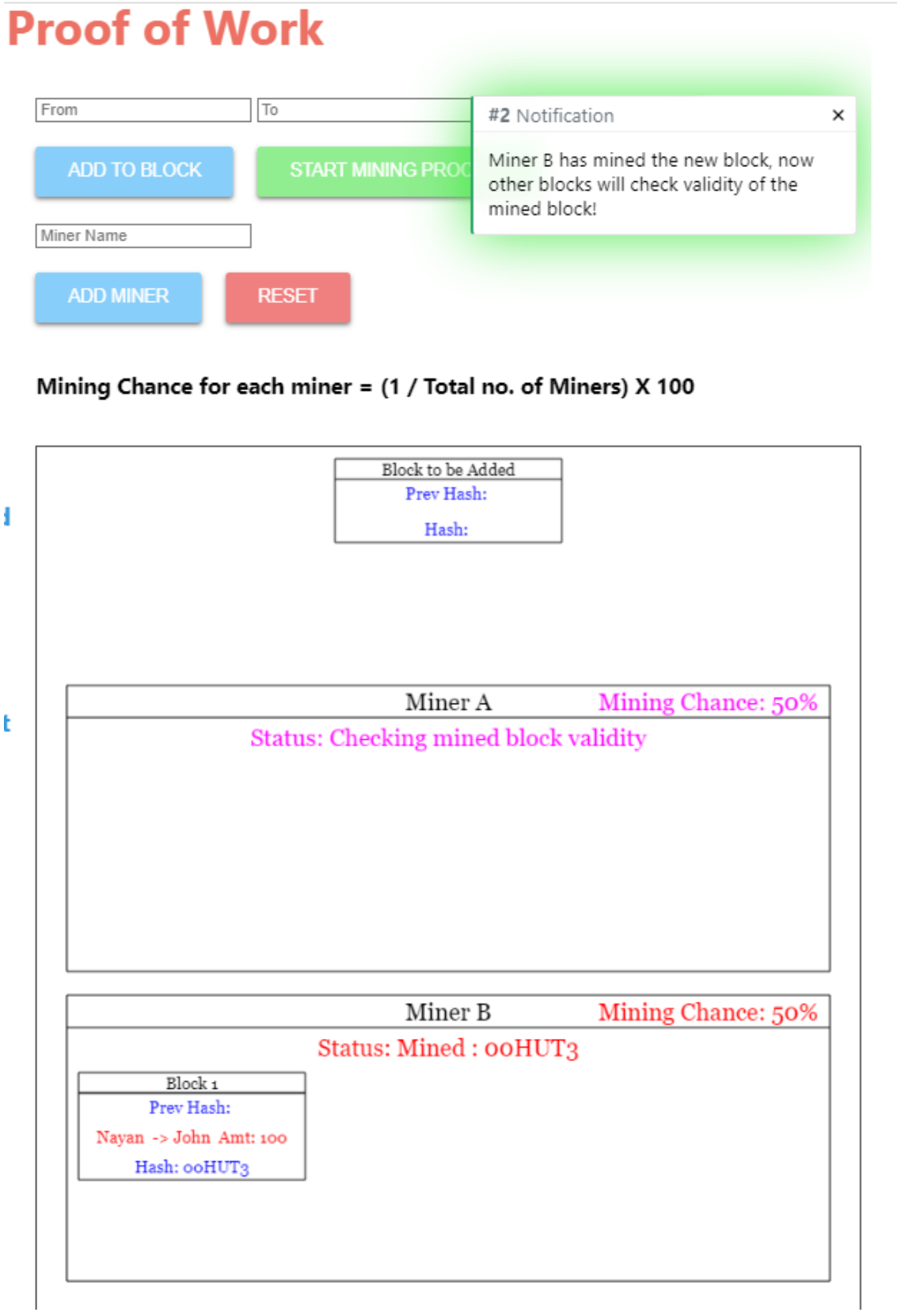
1) Miner B added:



Mining Chance for each miner = (1 / Total no. of Miners) X 100

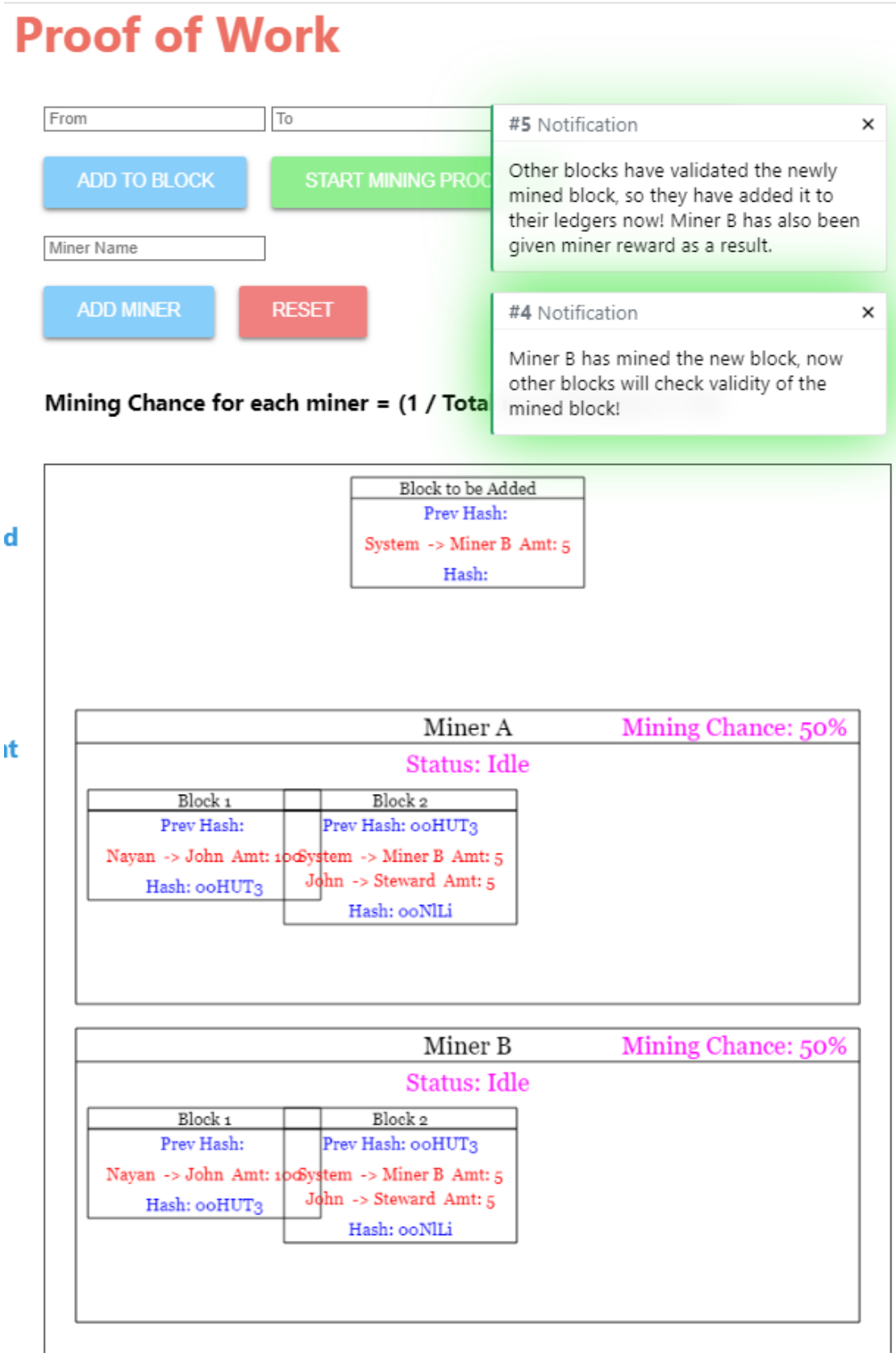


2) New block to be added will be staged and one of the miners will calculate the hash.



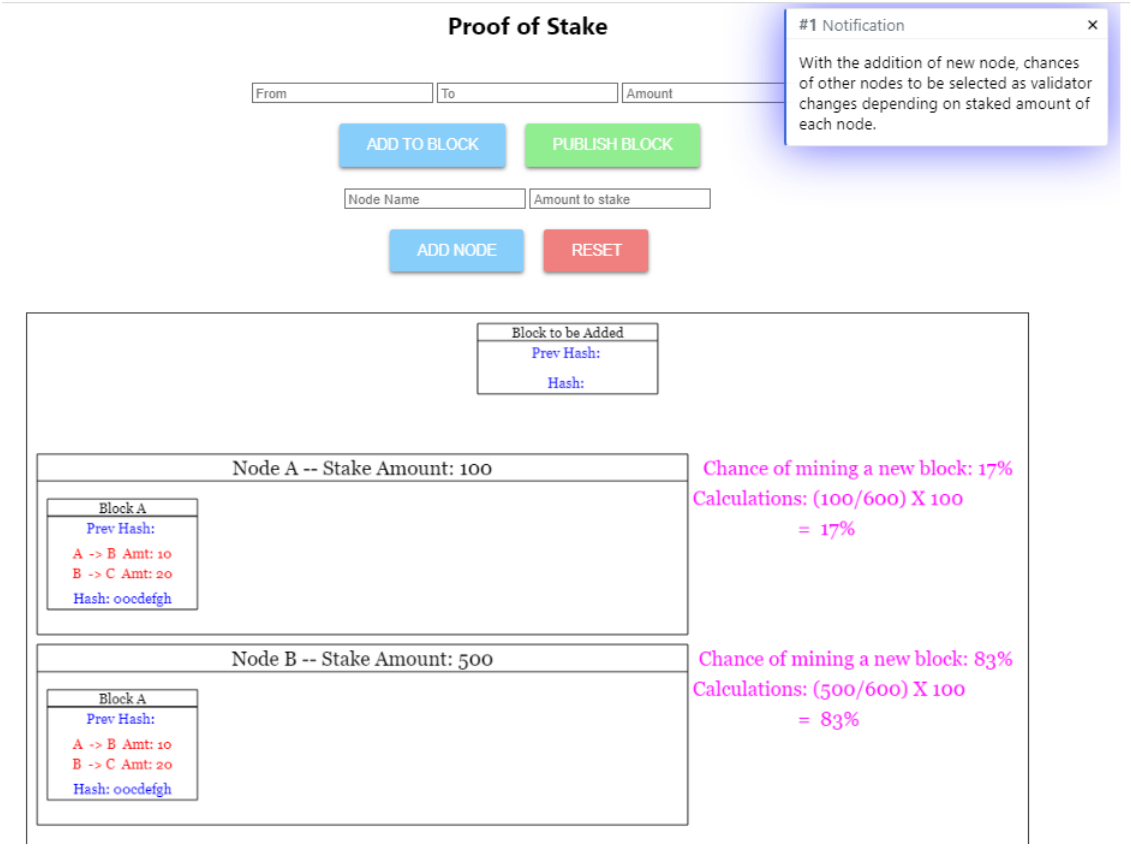
3) Block announced to all the miners.

4) Another block added.

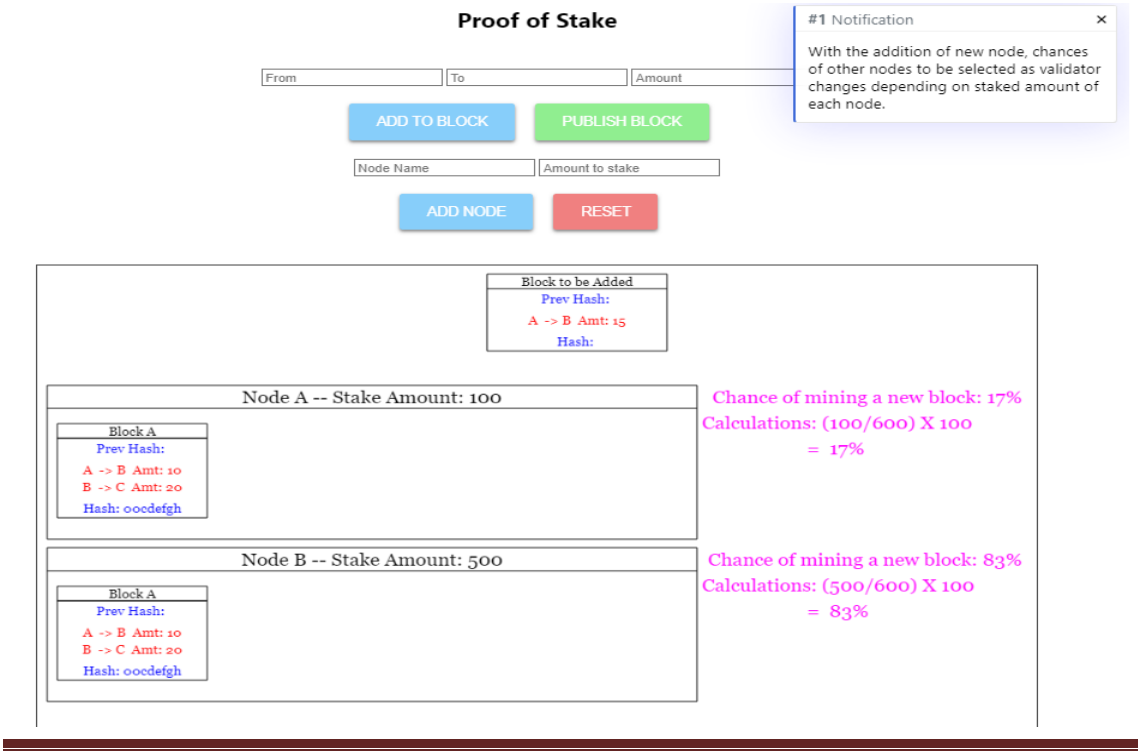


Proof of stake activity:

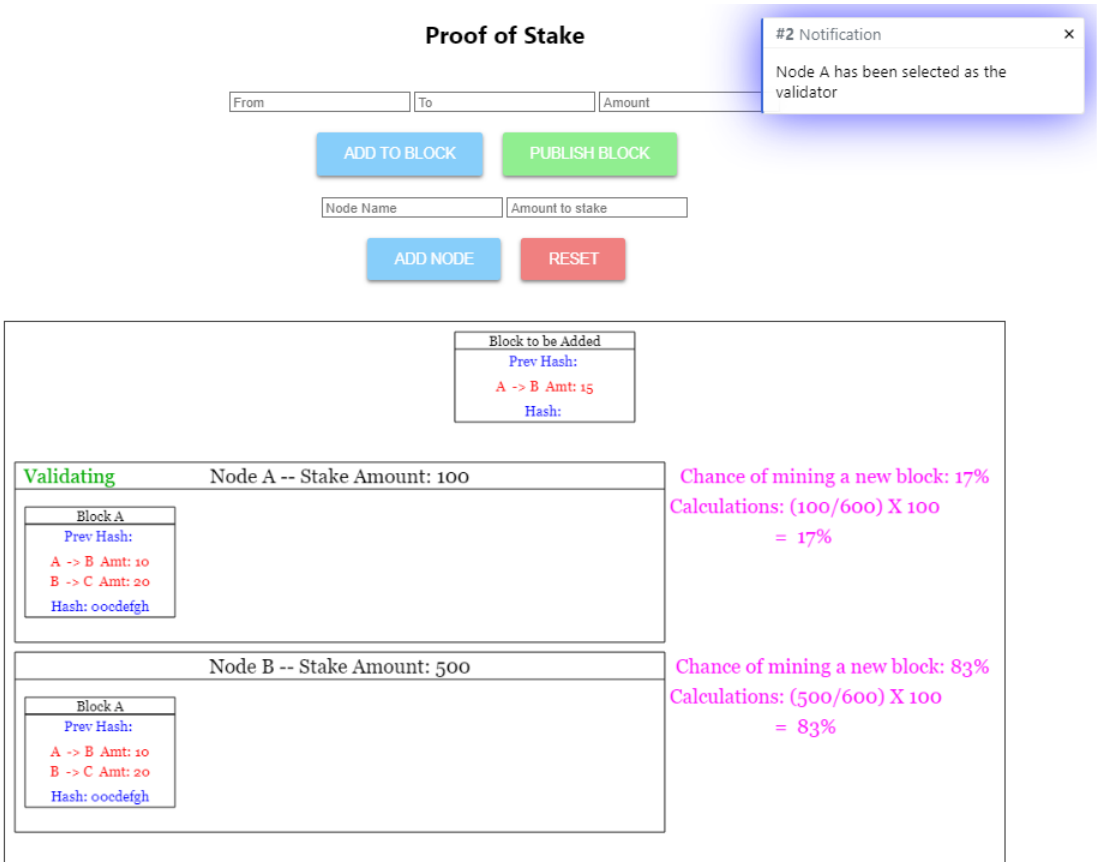
1) Node B added to the chain:



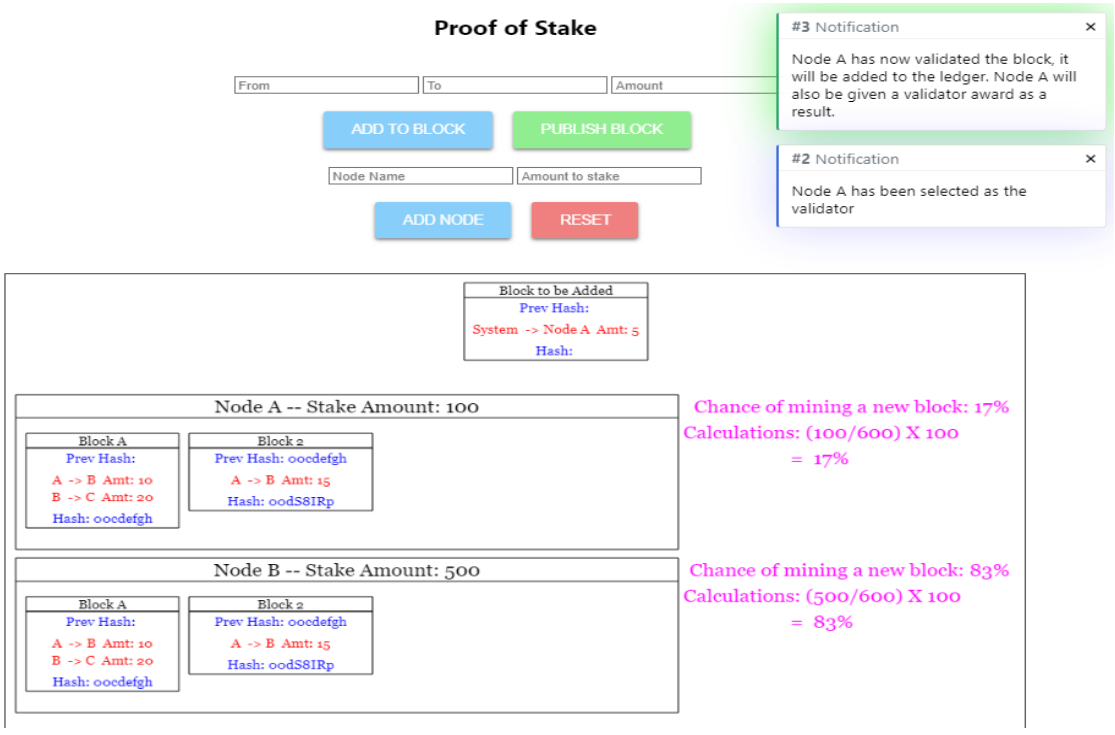
2) New block added (transaction from A to B, amount = 15):



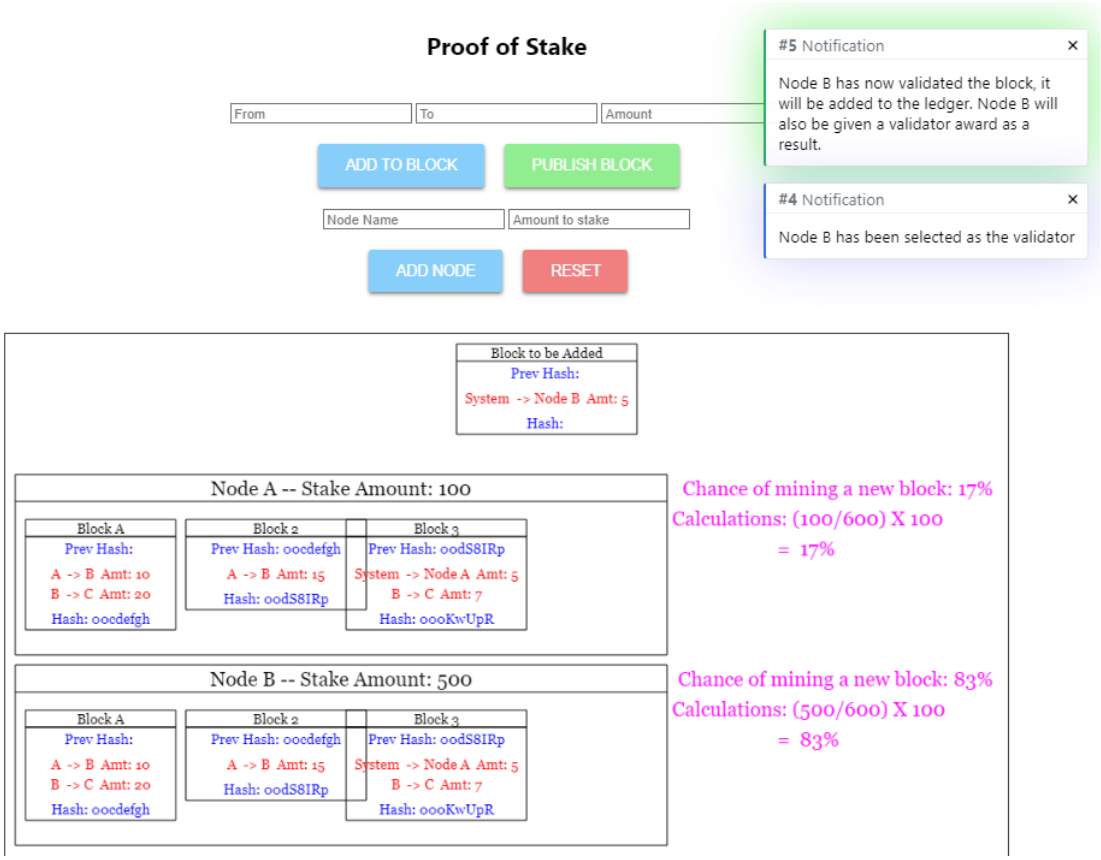
3) Node A selected as validator node.



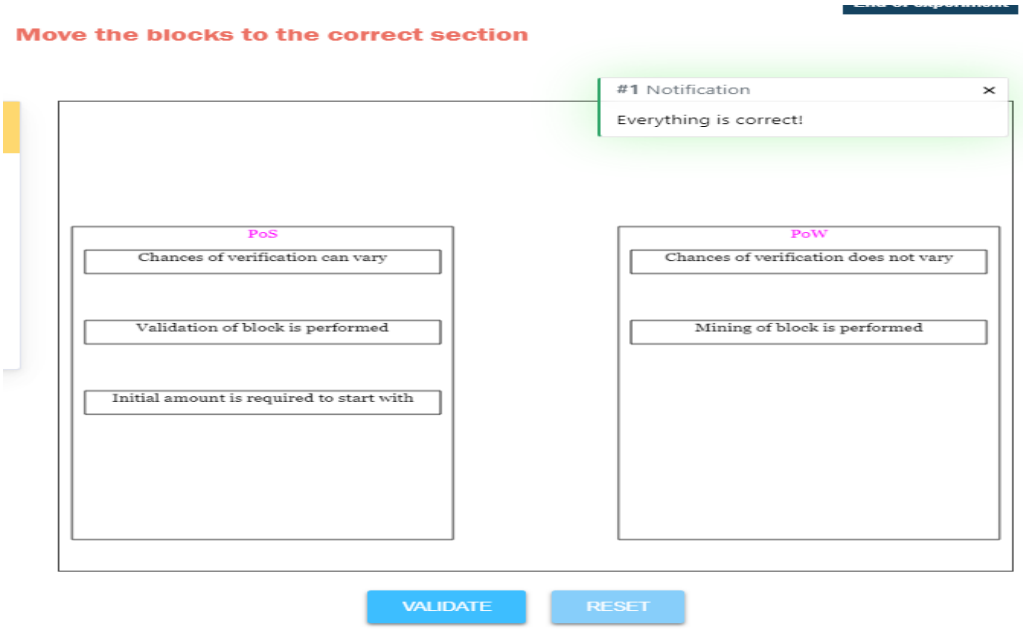
4) Block published to another node.



5) Another block added to the chain.



Difference between proof of work and proof of stake activity:



Post Test

What is Proof of Stake?

- a : A timestamp
- (•) b : A Consensus protocol
- c : A Cryptographic dimension
- d : None Of the above

What is Proof Of work?

- a : A timestamp
- (•) b : A Consensus protocol
- c : A Cryptographic dimension
- d : None of these

What role does consensus algorithm play in mining?

- a : Validation
- b : Adding of blocks
- (•) c : Both a and b
- d : None of the above

Is there, a better algorithm for PoW than SHA-256?

- (•) a : Yes
- b : No
- c : Can't say

Pos is an alternative measure of?

- (•) a : PoW
- b : PoA
- c : PoB
- d : PoC

Which statement is correct?

- a : Mining is a mutable option in blockchain
- (•) b : SHA-256 is the only cryptographic algorithm used in blockchain
- c : Both A and B
- d : None of the above

Which is not an advantage of blockchain technology?

- (•) a : Anonymity & Privacy
- b : Mutability
- c : Both A and B
- d : None of the above

Submit Quiz

7 out of 7