A Simple Blockchain Documentation

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1 A Little Theory on the blockchain technology

A blockchain is a distributed data storage composed of containers which are connected.

1.1 The Blocks

A container is represented by a block that can contain any type of data (In the case of a cryptocurrency, the data is a list of transactions). In a blockchain, the order of each block matters and each block know something about each other (via a hash).

1.2 The Hash

A hash is a string of text corresponding to a bunch of data. When you hash a data, it generates that string that uniquely identifies the data (for the same input you get the same hash). In a blockchain, each block has a hash that uniquely identifies it. Also, each block (except the first one) stores the hash of the previous block. The security mechanism of a blockchain appears when you change the previous blocks, the last block (with the true hash) will detect that the hash that it stores doesn't match the hash of the hacked previous blocks.

1.3 The Transaction

Three informations are necessary to define a transaction: the sender, the recipient and the amount.

1.4 The Mining

Coins are created via mining. It is a result of the effort (a reward) in creating new coins. It is also how new blocks are added to the end of the blockchain.

1.5 The Node

A node is simply a machine hosting the whole blockchain.

1.6 The Wallet

For simplification in this project, we will say that a wallet is a node that has an adress for receiving or sending coins.

1.7 The cryptocurrency

A cryptocurrency is based on the blockchain theory to operate. The coins transferred via the transactions form the cryptocurrency. Inside the blockchain, it is not possible to change coins into other currencies. Only via a platform (Coinbase, Binance, ...) you can exchange the coins into fiat currency. And the worth of each coin is what people think it is. Because this technology is new, the volatility is very high, we have not properly assessed the true value of this technology.

1.8 Verification of the blockchain

1.9 The Transactions

1.10 The Consensus

2 Implementation of the blockchain