Web3 Solana Blockchain - 03

What are Transactions

In simple terms, a transaction refers to the process of sending or receiving something of value between two or more parties. In the context of blockchain technology, transactions are the fundamental units of activity. They represent actions performed on a blockchain network, such as sending or receiving digital currencies (cryptocurrencies), executing smart contracts, or updating data on the blockchain.

When a transaction occurs, it contains information about the sender, recipient, the amount or type of asset being transferred, and any additional instructions or conditions. Transactions are typically validated, recorded, and stored on the blockchain, ensuring transparency and security.

Transactions are the essential part of the blockchain. not whole block itself. In One Block there are many tansactions as inside one to form a block and these blocks connect together to form the blockchain. Another thing about transactions are that they are. So Transactions have atomic nature means that they there are only two possible outcomes one the transactions happens completely all at once or two. overall success or failure. And these all depends upon making smart contracts, which in solana is called program.

Transactions fees

Fees are charges associated with transactions conducted on a blockchain network. When you perform a transaction, you may need to pay a fee, often known as a transaction fee or gas fee. These fees serve multiple purposes within the blockchain ecosystem.

Firstly, fees act as an incentive for the network's participants, known as validators or miners, who process and validate transactions. These participants dedicate computational resources and contribute to the network's security and reliability. In return for their efforts, they receive transaction fees as a reward.

Secondly, fees serve as a mechanism to prevent spam and misuse of the network. By requiring a fee, it discourages malicious actors from flooding the network with unnecessary or fraudulent transactions. The fee adds a cost to performing transactions, encouraging users to prioritize and ensure the efficiency of their actions.

The exact calculation and amount of fees can vary depending on the blockchain network. Factors influencing fees include network congestion, the complexity of the transaction, and the network's rules and protocols. Users can set the fee amount when initiating a transaction, and transactions with higher fees generally receive priority in processing.

The small fees paid to process instructions on the Solana blockchain are known as "*transaction fees*".

As each transaction (which contains one or more instructions) is sent through the network, it gets processed by the current leader validation-client. Once confirmed as a global state transaction, this *transaction fee* is paid to the network to help support the economic design of the Solana blockchain.

Using Your To and from Wallets

From Wallet: The "From Wallet" represents the wallet or account that is initiating or sending the transaction. It is associated with the sender of the transaction. This wallet contains the necessary credentials, such as the private key or secret information, to authorize and execute the transaction. The From Wallet is responsible for specifying the recipient, the amount or type of asset being transferred, and any additional details required for the transaction.

To Wallet: The "To Wallet" represents the wallet or account that is the intended recipient of the transaction. It is associated with the receiver of the transaction. The To Wallet is the destination address where the transferred assets will be credited or delivered. The sender specifies the To Wallet address as part of the transaction details, ensuring that the assets are correctly sent to the intended recipient's account.

Transferring a SOL

All We need to do is add system program, transfer and put it information of a public key of both the front wallet and the two wallet. We also put how much we want to transfer which in this case is 0.01 SOL, so this actually converts to 100 millon lamports. The purpose of Airdrops that confirming the transactions, so to do this, we need the connection the transaction that we just made and the cipher the singner is the from wallet (Sender) and this contains the public key and the private key of that to make secure transactions.