

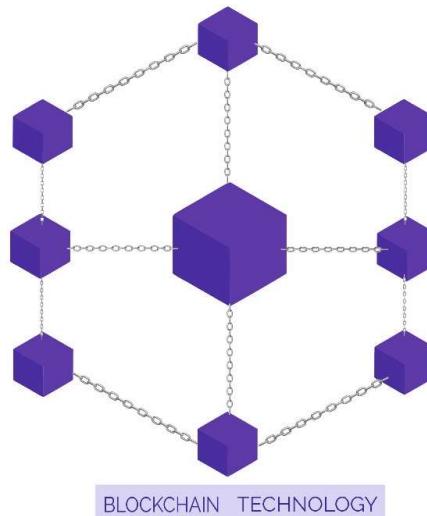
Blockchain Technology



What is Blockchain Technology?

Blockchain, sometimes referred to as Distributed Ledger Technology (DLT), makes the history of any digital asset unalterable and transparent through the use of decentralization and cryptographic hashing.

A simple analogy for understanding blockchain technology is a Google Doc. When we create a document and share it with a group of people, the document is distributed instead of copied or transferred. This creates a decentralized distribution chain that gives everyone access to the document at the same time. No one is locked out awaiting changes from another party, while all modifications to the doc are being recorded in real-time, making changes completely transparent.



Blockchain consists of three important concepts: blocks, nodes and miners.

1.Blocks

Every chain consists of multiple blocks and each block has three basic elements:

The data in the block.

A 32-bit whole number called a nonce. The nonce is randomly generated when a block is created, which then generates a block header hash.

The hash is a 256-bit number wedged to the nonce. It must start with a huge number of zeroes (i.e., be extremely small).

2.Nodes

One of the most important concepts in blockchain technology is decentralization. No one computer or organization can own the chain. Instead, it is a distributed ledger via the nodes connected to the chain. Nodes can be any kind of electronic device that maintains copies of the blockchain and keeps the network functioning.

3.Miners

Miners create new blocks on the chain through a process called mining. In a blockchain every block has its own unique nonce and hash, but also references the hash of the previous block in the chain, so mining a block isn't easy, especially on large chains.

So how does a blockchain differ from a database?

Storage Structure

One key difference between a typical database and a blockchain is the way the data is structured. A blockchain collects information together in groups, also known as blocks, that hold sets of information. Blocks have certain storage capacities and, when filled, are chained onto the previously filled block, forming a chain of data known as the "blockchain." All new information that follows that freshly added block is compiled into a newly formed block that will then also be added to the chain once filled.

A database structures its data into tables whereas a blockchain, like its name implies, structures its data into chunks (blocks) that are chained together. This makes it so that all blockchains are databases but not all databases are blockchains. This system also inherently makes an irreversible timeline of data when implemented in a decentralized nature. When a block is filled it is set in stone and becomes a part of this timeline. Each block in the chain is given an exact timestamp when it is added to the chain.

Transaction Process

