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Assignment 1 Blockchain (04-11-2022)

What is Mining?

Mining is the mechanism through which Bitcoin and other cryptocurrencies produce new currency and validate new transactions. It entails massive, decentralised networks of computers all over the world that verify and safeguard blockchains, which are virtual ledgers that record bitcoin transactions. Computers in the network are rewarded with fresh coins in exchange for contributing processing power. It's a virtuous circle: miners keep the blockchain safe, the blockchain awards coins, and the coins create an incentive for miners to keep the network secure.

Summary

- Bitcoin mining involves powerful computers attempting to solve the complex mathematical problems of the Bitcoin algorithm.
- Solving these problems helps keep the blockchain ledger and network secure trustworthy.
- All Bitcoin miners contribute to this process. The miner who successfully solves a mathematical problem is awarded Bitcoin.

Miners are those who are active in the mining process.
Blockchain and Bitcoin:
A blockchain is a distributed ledger that is used to digitally document data.

To my understand, Bitcoin is fully based on a blockchain network, which stores and records transactions on a massive network of computers. Each block contains transactions, which are only added to the blockchain once they have been confirmed and validated by miners. Because the transactions are now on the blockchain, any modifications to them are no longer feasible. Bitcoin employs distributed ledger technology, a distinguishing characteristic of blockchain technology that assures no records can be changed and so provides considerably more transaction transparency. The Bitcoin blockchain network employs the most recent SHA-256 cryptographic algorithm approaches.

Basics of Bitcoin Mining

There are three ways to acquire Bitcoin:

1. Purchase them on an exchange
2. Receive them in exchange for goods and services
3. Mine new Bitcoin

How much power required to mine a bitcoin?

To mine one bitcoin per day

Or simply half of one every day....

There are at least 7-8 exahashes per second of processing power operating and rising continually in Bitcoin mining.

around 7,000-8,000 petahashes
7 billion to 8 billion GH/s
The s9 ant miner costs around $5,000. And achieves 14 TH/s (14,000 gh/s).

Assuming that bitcoin mining uses 7 billion GH per second (it is most likely 8, 7 just makes calculates into prettier numbers)

Furthermore, each antminer provides 14 thousand GH per second.

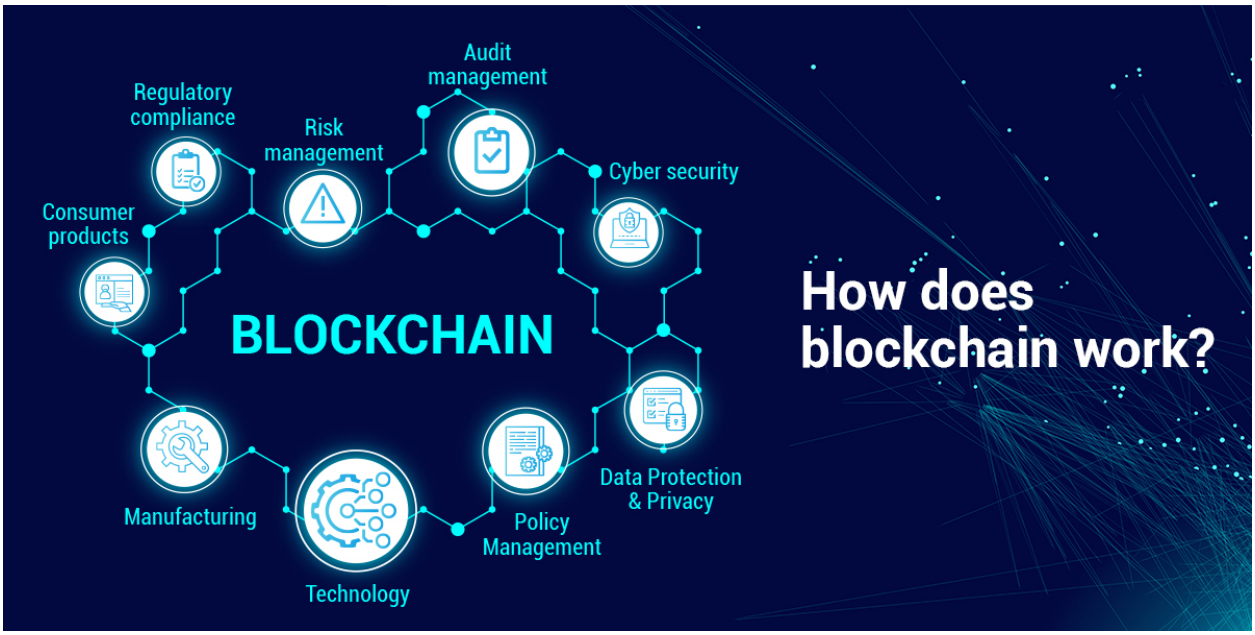
Or.0002% (.000002 x 100%) of the mining. And there are 2,000 bitcoin a day: 83.33_ every hour 1.388_ every minute .02315 every second
You would get .004 BTC a day For 5,000$ You would need 250 S9 antminers For only 1 btc a day 250 x 5,000 = 1.25 million dollars Or 612,500$ for half a bitcoin a day, based on hashing

2) Explain the properties of the blockchain

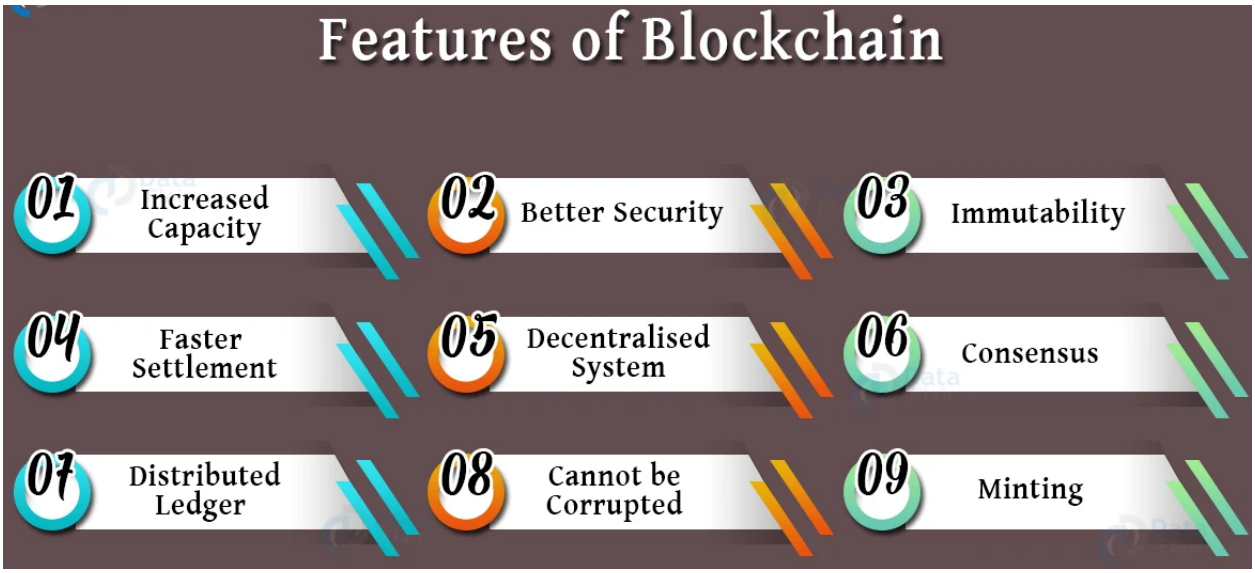
a) Immutability
b) Decentralized
c) Enhanced Security

d) Distributed Ledgers

e) Consensus
f) Faster Settlement



Below snapshot to help us to understand in detail.



Here I like most is DECENTRALIZED:

Decentralized :

The network is decentralized meaning it doesn't have any governing authority or a single person looking after the framework. Rather a group of nodes maintains the network making it decentralized.

This is one of the key features of blockchain technology that works perfectly. Let me make it simpler. Blockchain puts us users in a straightforward position. As the system doesn't require any governing authority, we can directly access it from the web and store our assets there.

You can store anything starting from cryptocurrencies, important documents, contracts or other valuable digital assets. And with the help of blockchain, you'll have direct control over them using your private key. So, you see the decentralized structure is giving the common people their power and rights back on their assets.

Why I Like the most ?
Now let's discuss how this blockchain feature is truly making changes –

Less Failure: Everything in the blockchain is fully organized, and as it doesn't depend on human calculations it's highly fault-tolerant. So, accidental failures of this system are not a usual output.
User Control: With decentralization, users now have control over their properties. They don't have to rely on any third party to maintain their assets. All of them can do it simultaneously by themselves.

Less Prone to Breakdown: As decentralized is one of the key features of blockchain technology, it can survive any malicious attack. This is because attacking the system is more expensive for hackers and not an easy solution. So, it's less likely to breakdown.
No Third-Party: Decentralized nature of the technology makes it a system that doesn't rely on third-party companies; No third-party, no added risk.
Zero Scams: As the system runs on algorithms, there is no chance for people to scam you out of anything. No one can utilize blockchain for their personal gains.
Transparency: The decentralized nature of technology creates a transparent profile of every participant. Every change on the blockchain is viewable and makes it more concrete. **Authentic Nature:** This nature of the system makes it a unique kind of system for every kind of person. And hackers will have a hard time cracking it.