**Q. Difference between Proof of work and Proof of stake:**

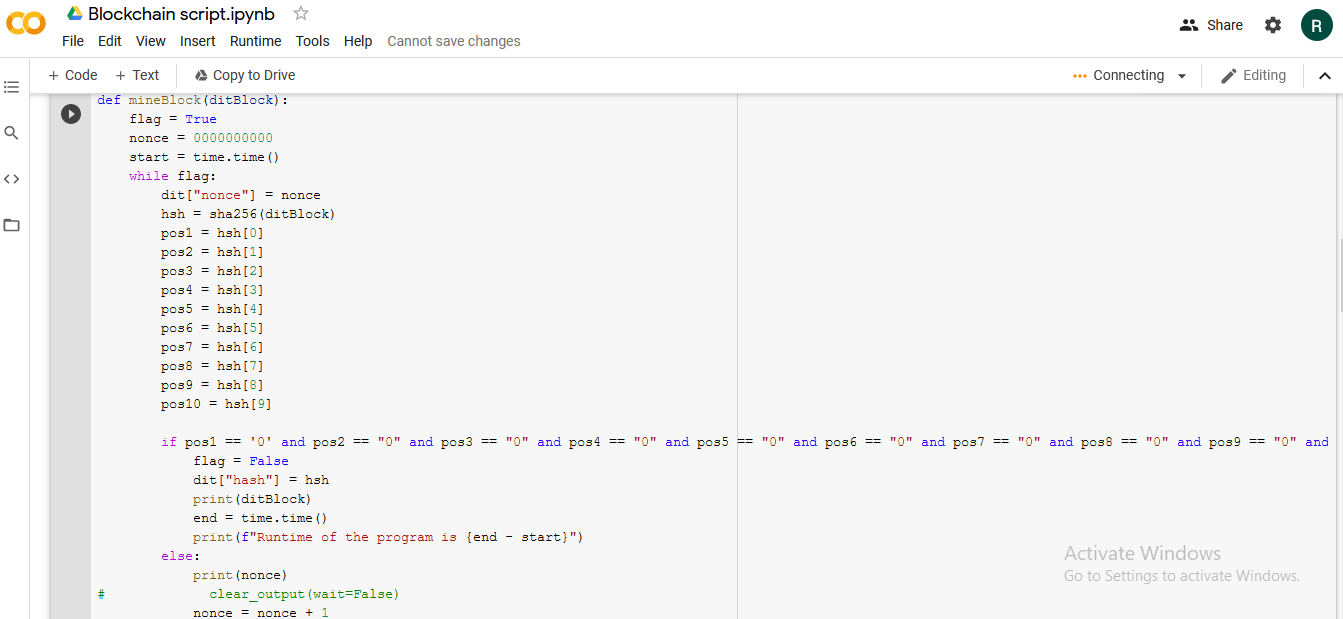
Proof of Work:

1. The probability of mining a block is determined by how much computational work is done by miner.
2. A reward is given to first miner to solve cryptographic puzzle of each block.
3. To add each block to chain, miners must compete to solve difficult puzzles using their computer process power
4. Hackers would need to have 51% of computation power to add malicious block.
5. Proof of work systems are less energy efficient and are less costly but more proven.
6. Specialized equipment to optimize processing power.
7. Initial investment to buy hardware.
8. Bitcoin is most well-known crypto with a Proof-of-Work consensus building algorithm which uses most well-known proof-of-work function is called SHA256.

Proof of Stake:

1. The probability of validating a new block is determined by how large of a stake a person holds (how many coins they possess).
2. The validator does not receive a block reward instead they collect network fee as their reward.
3. There is no competition as block creator is .chosen by an algorithm based on user stake.
4. Hackers would need to own 51% of all [cryptocurrency](https://www.geeksforgeeks.org/what-is-a-cryptocurrency/) on network, which is practically impossible.
5. Proof of Stake systems are much more cost and energy efficient than POW systems but less proven.
6. Standard server grade unit is more than enough.
7. Initial investment to buy stake and build reputation.
8. Some of cryptocurrencies that use different variants of proof-of-stake consensus are: EOS (EOS), Tezos (XTZ), Cardano (ADA), Cosmos (ATOM), Lisk (LSK).

**Q.Test mining code in python for 10 zeros and share the nonce and time taken**

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