Blockchain async assignment 1

1.What is Blockchain technology? Explain the concepts.

- Blockchain is a shared/decentralized, distributed, cryptographically secure ,immutable and hence trusted ledger, which no single user controls and which can be inspected by anyone. ● Block chain is a chain of blocks, where the block is the digital information and chain means the public database.
- Each block is connected by a chain, i.e, each block is linked with its previous block thus making a chain of blocks.
- Working of blockchain:
    - Transaction is performed on blockchain
    - Transaction block is sent to every node
    - Verification of translation
    - Nodes receives reward
    - Transaction is stored in blockchain

2.What is the role of miners?

- Miners are the nodes/computer system of a blockchain
- They perform the verification process of each transaction
- They were rewarded with coins on producing blocks.

3.Differentiate and contrast between public and private blockchain?

In a public blockchain, anyone can read and write on the ledger. But in a private blockchain, only a single organization can read and write on the ledger. More so, only a handful of nodes can write on the ledger. In some cases, they can even delete a block as well.

4. How blockchain provides the guarantee against database tampering?

- Data stored in the blockchain is secured with cryptographic hashes
- Hashes are the codes that generated by performing some cryptographic algorithm ● SHA-256 is one of the strong and popular hash function used in bitcoin

5. Explain the block contents.

- Block index which indicates the location of a block in a blockchain
- Information about transactions(date,time,data)
- Reference of the previous block
- Nonce which is a counter used for mining purpose

6. Explain smart contracts with an example.

- Smart contracts are autonomous coded programs that are deployed on blockchain.
- Different languages are used for smart contracts solidity, C++,Go etc.
- Eg : Ethereum

7. Describe the evolution of blockchain technology (1.0 to 3.0) with features.

- Blockchain 1.0 - Digital currencies
    - Blockchain technology introduced
    - First use case - BTC - cryptocurrencies
    - Popular examples - Bitcoin, Litecoin, Dogecoin
- Blockchain 2.0 - Smart contracts
    - Smart contracts were introduced for the first time
    - BLockchains that support coded programs ○

    Popular examples : Ethereum, BAT

- Blockchain 3.0 - Scalability
    - Focused on scalability and efficiency
    - Higher TPS
    - Lower transaction costs
    - Popular examples : Cardano, Nano, IOTA