1. What is Blockchain.
   Blockchain is defined as a ledger of decentralized data that is securely shared. Blockchain technology enables a collective group of select participants to share data. With blockchain cloud services, transactional data from multiple sources can be easily collected, integrated, and shared. Data is broken up into shared blocks that are chained together with unique identifiers in the form of cryptographic hashes.

   Application:-

   1. Money transfer
   2. Financial exchange
   3. Lending
   4. Insurance
   5. Real state
   6. Secure personal information
   7. Voting

Three types of blockchain

- *Public blockchain*.

  A public, or permission-less, blockchain network is one where anyone can participate without restrictions. Most types of cryptocurrencies run on a public blockchain that is governed by rules or consensus algorithms.

- *Permissioned or private blockchain*.

  A private, or permissioned, blockchain allows organizations to set controls on who can access blockchain data. Only users who are granted permissions can access specific sets of data. Oracle Blockchain Platform is a permissioned blockchain.

- *Federated or consortium blockchain*.

  A blockchain network where the consensus process (mining process) is closely controlled by a preselected set of nodes or by a preselected number of stakeholders.

Q. what is bft.

Byzantine fault tolerance refers to the ability of a network or system to continue functioning even when some components are faulty or have failed. With a BFT system, blockchain networks keep functioning or implementing planned actions as long as most network participants are reliable and genuine. This means that over half or two-thirds of the nodes on the blockchain network must agree to validate a transaction and add it to the block.

How Does the Byzantine Fault Tolerance Work?

> Decentralized networks implement Byzantine fault tolerance via consensus rules or protocols. All the nodes in the network must adhere to these protocols or algorithms if they want to participate in validating and processing transactions.
> For a transaction to be validated, processed, and added to a growing block, most nodes must agree that the transaction is authentic through the network's consensus algorithm. Bitcoin, Ethereum, and other proof of work (PoW) and proof of stake (PoS) blockchains employ BFT algorithms.

Q. P2P network

In a peer-to-peer network (P2P), every participant plays the same role; *they are all peers*. Each peer is both a *client* - requesting data, and a *server* - providing data.

When you compare it to a regular website, this makes it a lot more robust.

A special computer on the internet stores most websites. This special computer is commonly known as a *server*. If you want to access the website, you connect directly to the server.

If this computer happens to have a problem, the website won't work. With a P2P network on the other hand, if one machine becomes unavailable, the remaining machines continue to provide services.

In a P2P network, you are usually connected to several peers and if one goes offline, everything still works as usual. This makes blockchain networks very robust.

What Is Proof of Work (PoW)?

Proof of work (PoW) describes a consensus mechanism that requires a significant amount of computing effort from a network of devices. The concept was adapted digital tokens by Hal Finney in 2004 through the idea of "reusable proof of work" using the 160-bit secure hash algorithm 1 (SHA-1).

Blockchains are distributed ledgers that record all bitcoin transactions, similarly to how you would enter transactions in a spreadsheet. Each block is similar to a cell. Information such as transaction amounts, wallet addresses, time, and date are recorded and encrypted into a block header—a hexadecimal number created through the blockchain's hashing function.

What is Hyperledger Fabric?

Hyperledger Fabric, an open source project from the Linux Foundation, is the modular blockchain framework and de facto standard for enterprise blockchain platforms. Intended as a foundation for developing enterprise-grade applications and industry solutions, the open, modular architecture uses plug-and-play components to accommodate a wide range of use cases.

Q.what are the diffuculti in mining processing

Data mining, the process of extracting knowledge from data, has become increasingly important as the amount of data generated by individuals, organizations, and machines has grown exponentially. However, data mining is not without its challenges. In this article, we will explore some of the main challenges of data mining.

1. Data quality
2. Data privacy and security
3. Data complexity
4. Scalability
5. Interpretibiliy

Q smart contract.

Smart contracts are simply programs stored on a blockchain that run when predetermined conditions are met. They typically are used to automate the execution of an agreement so that all participants can be immediately certain of the outcome, without any intermediary's involvement or time loss. They can also automate a workflow, triggering the next action when conditions are met.

Q. Consensus

Generally, consensus means that the majority of a group has agreed in favour of a decision. When it comes to blockchain, reaching a consensus is important. At least 51% of the traders and miners associated with a particular coin must agree to finalise the next global status of the coin.