Module 1

Define blockchain and example with suitable example

What problems are associated with a centralized system?..

Differentiate between centralized, decentralized, and distributed architecture

Explain with a suitable diagram, the simplified architecture of a blockchain

State and explain different components or elements of a blockchain.

How External Applications Interact with the Blockchain Ledger?

What are blockchain events?

Short note on key features on blockchain

What is a block header? How are blocks linked in blockchain?

Compare and contrast the CAP theorem and the Byzantine Generals Problem in the context of Blockchain.

Explain the difference between DLT and Blockchain.

What is dlt?

Define the define of bc,elements,advantages ,features and types

What is merkle tree explain structure of merkle tree

What is a Blockchain fork? Differentiate between soft fork and hard fork. Explain block in blockchain structure of block , block header hash and block height

Module 2

Short note on utxo in bitcoin

Explain Simplified Payment Verification Nodes. What is the Privacy solution for SPV nodes?

Explain bitcoin mining with the help of a neat diagram.

Explain the concept of a Bitcoin wallet. Describe the process of Bitcoin mining and its relation to the Difficulty levels. Compare Bitcoin's network architecture with traditional Peer-to-Peer networks. Explain bitcoin network concept.

Module 3

Short note on eoa and contract address

| What is nonce in blockchain and how does it work?  Explain different List and explain the parts of EVM memory.  With the help of a suitable diagram explain the life-cycle of a smart contract in Ethereum. |
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Define Ethereum and its version 1.0 and 2.0. Explain the concept of an Ethereum wallet Describe the process of creating ERC20 tokens. Discuss the differences between Ethereum's EVM and Bitcoin's technology Difference between blockchain and ethereum Program in solidity programming to implement multilevel inheritance. Ethereum wallet and its types

An Ethereum wallet is a software application that allows users to interact with the Ethereum blockchain. It enables users to store, send, and receive Ether (ETH), the native cryptocurrency of Ethereum, as well as interact with smart contracts and decentralized applications (dApps) built on the Ethereum network. There are several types of Ethereum wallets, each with its own characteristics and use cases:

* Software Wallets: These are applications that you install on your computer or mobile device. They can be further divided into:
  + Desktop Wallets: Installed on a desktop or laptop computer. Examples include MetaMask and MyEtherWallet.
  + Mobile Wallets: Installed on a mobile device. Examples include Trust Wallet and Coinbase Wallet.
* Hardware Wallets: These are physical devices that securely store your private keys offline. They are considered one of the most secure ways to store cryptocurrency. Examples include Ledger Nano S and Trezor.
* Paper Wallets: A paper wallet is a physical document that contains your public and private keys. It's considered one of the most secure ways to store cryptocurrency because it's offline and not susceptible to hacking. However, it requires careful handling to prevent loss or damage.
* Web Wallets: These wallets run on a web server and are accessible through a web browser. They are convenient but are considered less secure than other types of wallets because they are online and controlled by a third party. Examples include wallets provided by cryptocurrency exchanges.
* Multisig Wallets: These wallets require multiple private keys to authorize a transaction. They are often used by organizations or groups to manage funds securely.

It's important to choose a wallet based on your security and convenience needs. Hardware wallets are generally considered the most secure, while software wallets offer more convenience but may be less secure. It's also recommended to use wallets from reputable providers and to enable additional security features like two-factor authentication (2FA) to protect your funds.

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