**Blockchain:**

A blockchain is “a distributed database that maintains a continuously growing list of ordered records, called blocks.

These blocks are linked using cryptography.

Each block contains a cryptographic hash of the previous block, a timestamp, and transaction data.

**Advantage** using blockchain :

1. It provides greater trust among users.
2. It provides greater security among data.
3. Reduce the cost of production.
4. Improve Speed.

**Disadvantages**  using blockchain :

1. Data modification is not possible.
2. It requires large storage for a large database.

### Permissionless Blockchain

It is also known as trustless or public blockchains, are available to everyone to participate in the blockchains process that use to validate transactions and data.

### Permissioned Blockchain

These are the closed network only a set of groups are allowed to validate transactions or data in a given blockchain network.

Types:-

**1. Public Blockchain**

* anyone having a computer and internet can participate in the network.
* It is open to the public, which means it is not owned by anyone.
* All the computer in the network hold the copy of other block present in the network
* In this public blockchain, we can also perform verification of transactions or records

E.g. Bitcoin, Ethereum.

**2. Private Blockchain**

* selected nodes can participate in the process, making it more secure than the others.
* They are open to some authorized users only. In this few people are allowed to participate in a network within a company/organization.

E.g. Hyperledger, Corda.

**3. Hybrid Blockchain**

* It is a combination of both public and private blockchain.
* Permission-based and Permissionless systems are used.
* User access information via smart contracts

E.g. Ripple network and XRP token

**4. Consortium Blockchain**

* solves the needs of the organization. This blockchain validates the transaction and also initiates or receives transactions.
* Some part is public and some part is private.
* In this type, more than one organization manages the blockchain.

E.g. Tendermint and Multichain

**Cryptography** is the process of encoding data to protect it from unauthorized access, maintain its privacy, and guarantee its

**cryptocurrency**

a digital currency in which transactions are verified and records maintained by a [decentralized](https://www.google.com/search?sca_esv=580120143&rlz=1C1GCEA_enIN1035IN1035&q=decentralized&si=ALGXSlasDpH6wngX24yaJ23IzSpEmWSP1GFfHr7L94BtTUmO0YyArj0JqBUZ6YxGH1oJyvhCFxLus9ZY1_SXunwvRwLn6zeaRh3erq5BXikxsyV6TTy3tXI%3D&expnd=1) system like blockchain using [cryptography](https://www.google.com/search?sca_esv=580120143&rlz=1C1GCEA_enIN1035IN1035&q=cryptography&si=ALGXSlaVHN-2QMLnZeLOkIlLjnKy1UK4KoFFqjCgVyEw4WBCI3wkxH2ZYNrXZTSbig2rQSJNpgUX8dl3M79Oe13WwvVrfJp33aA3-3fg31kQ08mJJE5q5Co%3D&expnd=1), rather than by a [centralized](https://www.google.com/search?sca_esv=580120143&rlz=1C1GCEA_enIN1035IN1035&q=centralized&si=ALGXSlYpmWhtmlIZKYHTCPXiYmMEhXXeUc0ZNTh4O2lI5Wx8ZppR1MuEJnx5kHPsBNFupybE16v1uqFEyRqqBsyfYyjEuw_sdy3CExfuSMXRQtb5_67QIoA%3D&expnd=1) authority.

**Bitcoin:**

bitcoin is digital money that allows for secure peer-to-peer transactions on the internet.

anyone with an internet connection can participate in.

bitcoin is decentralized: any two people, anywhere in the world, can send bitcoin to each other without the involvement of a bank, government, or other institution.

Every transaction involving Bitcoin is tracked on the [blockchain](https://help.coinbase.com/en/coinbase/getting-started/general-crypto-education/what-is-the-bitcoin-blockchain.html" \t "_blank),

What is **Ethereum**?

Ethereum is a [blockchain](https://www.simplilearn.com/tutorials/blockchain-tutorial/what-is-blockchain" \o "blockchain" \t "_blank)-based computing platform that enables developers to build and deploy decentralized applications

* **Ether**: This is Ethereum’s [cryptocurrency.](https://www.simplilearn.com/tutorials/blockchain-tutorial/what-is-cryptocurrency)

Ethereum uses A Smart Contract (or cryptocontract) to build the application

**Smart contracts** are digital contracts stored on a blockchain that are automatically executed when predetermined terms and conditions are met

**Solidity** is an object-oriented programming language created specifically by the Ethereum Network team for constructing and designing smart contracts on Blockchain platforms.

**EVMC**: Ethereum virtual Machine : runtime environment for smart contract

**Wallet** In BT: a digital tool that allow individuals to manage, store,send and receive cryptocurrencies. Store the cryptocurrencies key

**Meta Mask:**

MetaMask is a software cryptocurrency wallet

MetaMask allows users to store and manage account [keys](https://en.wikipedia.org/wiki/Key_(cryptography)), broadcast transactions, send and receive [Ethereum](https://en.wikipedia.org/wiki/Ethereum" \o "Ethereum)-based [cryptocurrencies](https://en.wikipedia.org/wiki/Cryptocurrency)

**Adv**: Easy to use, available for both desktop and mobiles, Secure, open source

### Other wallets: Coinbase Wallet, SafePal Crypto Wallet

**Testnet**: Test Network is a separate blockchain network created for the testing and development process

### A fallback function: It is an external function with neither a name, parameters, or return values. It is executed in one of the following cases: If a function identifier doesn't match any of the available functions in a smart contract. If there was no data supplied along with the function call.

**Stuctures:**

Grouping together related data

Declared outside the contract