

Blockchain

A Digital Ledger

Agenda

- Blockchain
- Block
- Nodes
- Proof of Work
- Smart Contracts
- POC

What is Blockchain?

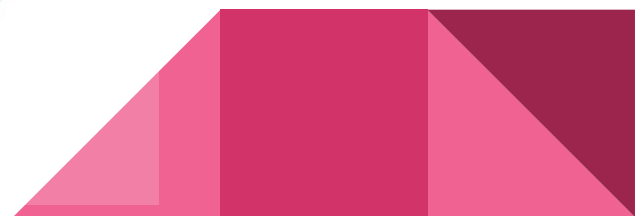


New
Transaction



What is Blockchain

A diagram illustrating a blockchain network. It features a central node (a laptop) connected to a network of other nodes (represented by pink circles) via a mesh of lines. The network is surrounded by several blue icons representing various assets or data: a book, a stack of papers, a diamond, a laptop, and a tablet. The background is white with a dark blue footer bar.

- Blockchain is a shared, immutable ledger that facilitates the process of recording transactions and tracking assets in a network
 - An asset can be tangible (a house, car, cash, land) or intangible (intellectual property, patents, copyrights, branding)
 - Virtually anything of value can be tracked and traded on a blockchain network, reducing risk and cutting costs for all involved
 - It was first introduced in 1991 by Stuart Haber and W. Scott Stornetta to store any data in digital format using timestamp
 - Bitcoin Cryptocurrency launched in January 2009
- 
- A decorative graphic in the bottom right corner consisting of several overlapping triangles in shades of pink and red.

Types of blockchain

- Public - open to all
- Private - within organization
- Hybrid - some part public some private
- Consortium - within multiple organization

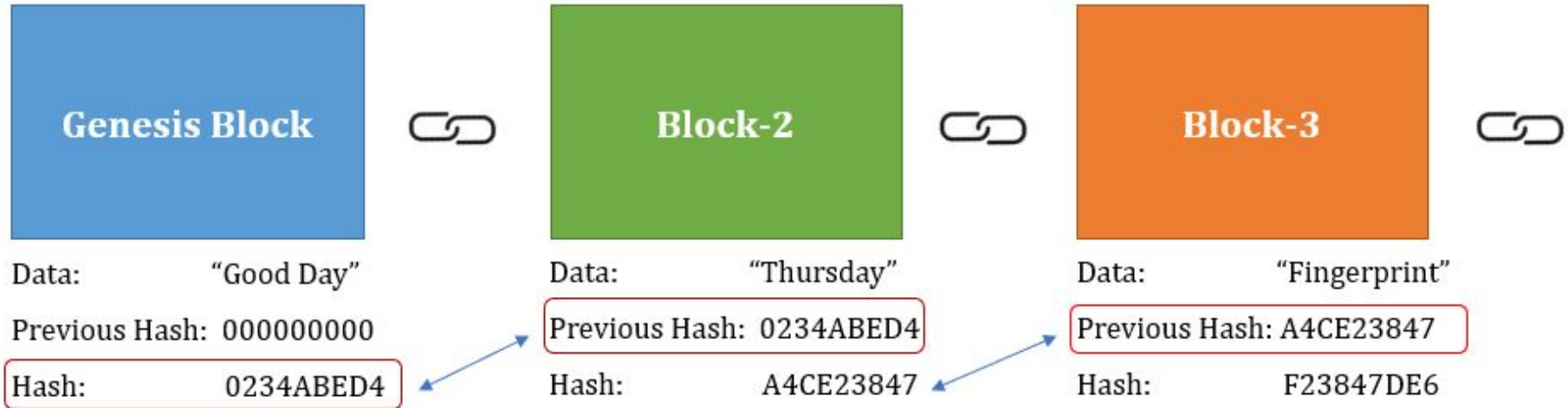


4 main types of blockchain technology

	Public (permissionless)	Private (permissioned)	Hybrid	Consortium
ADVANTAGES	<ul style="list-style-type: none">+ Independence+ Transparency+ Trust	<ul style="list-style-type: none">+ Access control+ Performance	<ul style="list-style-type: none">+ Access control+ Performance+ Scalability	<ul style="list-style-type: none">+ Access control+ Scalability+ Security
DISADVANTAGES	<ul style="list-style-type: none">- Performance- Scalability- Security	<ul style="list-style-type: none">- Trust- Auditability	<ul style="list-style-type: none">- Transparency- Upgrading	<ul style="list-style-type: none">- Transparency
USE CASES	<ul style="list-style-type: none">■ Cryptocurrency■ Document validation	<ul style="list-style-type: none">■ Supply chain■ Asset ownership	<ul style="list-style-type: none">■ Medical records■ Real estate	<ul style="list-style-type: none">■ Banking■ Research■ Supply chain

Block

It represents the 'present' and contains information about its past and future



Nodes

Blockchain is consist of blocks. These blocks containing data are stored in computers (small servers).

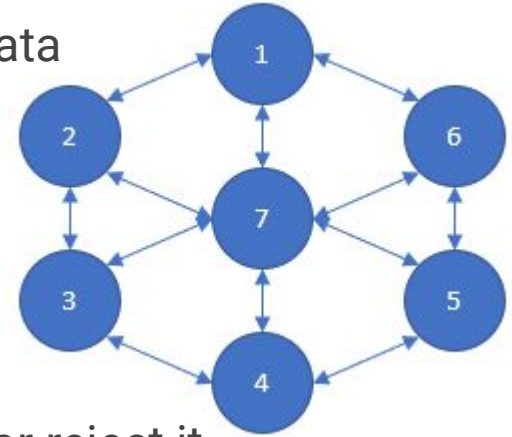
Nodes forms infrastructure of blockchain

All nodes in blockchain constantly exchanges latest blockchain data.

Nodes check if a block of transactions is valid and accept or reject it

It save and store block of transactions

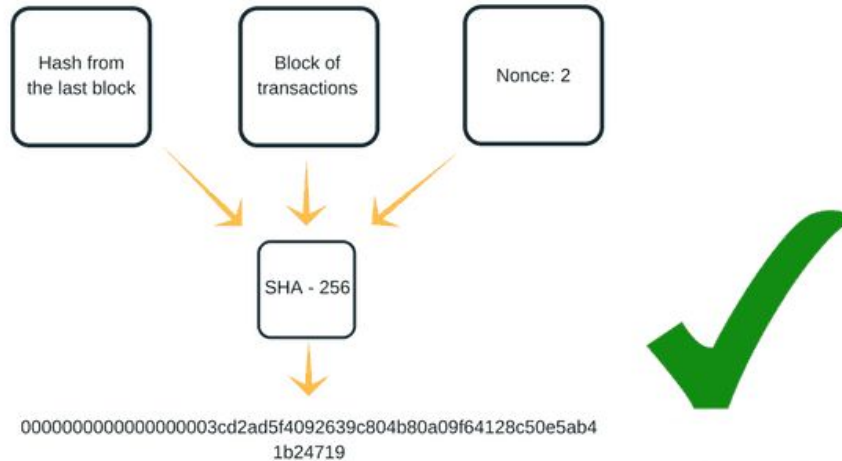
It broadcast transactions history to other nodes



Proof of work

Proof of work (PoW) is a form of cryptographic zero-knowledge proof in which one party (the prover) proves to others (the verifiers) that a certain amount of a specific computational effort has been expended.

Verifiers can subsequently confirm this expenditure with minimal effort on their part.



Smart Contract

A smart contract is a computer program or a transaction protocol which is intended to automatically execute, control or document legally relevant events and actions according to the terms of a contract or an agreement.



Bitcoin

BITCOIN IS NOT A BLOCKCHAIN

Bitcoin is a decentralized digital currency, without a central bank or single administrator, that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries.

It was invented in 2008 by an unknown person or a group name Satoshi Nakamoto.

2010 - \$0.30 per bitcoin (22 ₹)

2021 - \$50,315 per bitcoin (36,72,747 ₹)



POC

BLOCKCHAIN DEVELOPMENT

Challenges

- Lack of knowledge
- Governance
- Energy Consumption
- Scalability
- Interoperability
- Criminal Activity - (Darkweb, Money Laundering, etc.)



Summary

- Write-only, immutable, transparent data storage
- Decentralized, no need for intermediaries
- Consistent state across all participants
- Resistant against malicious participants
- Open to everyone

Though there are challenges to implement blockchain, it is going to be the future.

Day by day issues are getting resolved and industry started using blockchain.





Thank You

Q n A