

blockchain

Basic Concepts of Blockchain

Definition and Structure

- block
- chain
- hashing
- Decentralization

Consensus Models

- PoW
- PoS
- DPoS
- BFT

Cryptography

- Hashing
- Digital Signatures
- Public & Private Keys

Distributed Networks

Types of Blockchain

- Public Blockchain
- Private Blockchain
- Consortium Blockchain
- Hybrid Blockchain

Mining and Incentive Models

Blockchain Forking

Applications of Blockchain

Cryptocurrency

- Bitcoin
- Ethereum

Smart Contracts

- Oracles

Decentralized Identity

Secure Voting Systems

Supply Chain

DeFi

NFT

Blockchain Tools and Programming Languages

- Solidity
- Rust
- Go

- Ganache
- Remix IDE

Challenges of Distributed Systems in Blockchain

Scalability

Security & Attacks

- Sybil Attack
- Eclipse Attack

Interoperability

