SNS COLLEGE OF ENGINEERING

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19SB603- PILLARS OF BLOCKCHAIN

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PILLARS ODDF BLOCKCHAIN

Pillars of Blockchain

- **Decentralization** – No central authority; data is distributed across nodes.
- **Transparency** – Transactions are publicly recorded and verifiable.
- **Immutability** – Once recorded, data cannot be altered or deleted.
- **Security** – Cryptographic encryption ensures tamper-proof records.
- **Consensus Mechanism** – Transactions are validated through PoW, PoS, or other protocols.

How Blockchain Ensures Security

- **Cryptographic Hashing** – Uses SHA-256 to secure data.
- **Decentralization** – No single point of failure; data is distributed.
- **Consensus Mechanisms** – Validates transactions without intermediaries.
- **Immutability** – Data cannot be altered once added to the blockchain.
- **Smart Contracts** – Automates and enforces secure agreements.

Example: Bitcoin Blockchain

- **Public Ledger** – All Bitcoin transactions are recorded transparently.
- **PoW Consensus** – Miners validate transactions through computational puzzles.
- **Security** – Uses SHA-256 cryptographic hashing for data integrity.
- **Immutability** – Once a block is added, it cannot be altered.
- **Decentralization** – No central authority controls Bitcoin transactions.

Real-World Example – Bitcoin and Ethereum use blockchain (a type of DLT) as a public ledger.


thank
you