Question 1
Choose one platform from each category:
● Public Blockchain: (e.g., Ethereum, Bitcoin, Solana)
● Private Blockchain: (e.g., Hyperledger Fabric, R3 Corda in private mode)
● Consortium Blockchain: (e.g., R3 Corda, Quorum, IBM Food Trust)

Answer 1
- Public Blockchain: **Ethereum**
- Private Blockchain: **Hyperledger Fabric**
- Consortium Blockchain: **R3 Corda**

Question 2
Create a comparison table or markdown sheet with the following columns for each platform:
- Blockchain Name
- Type (Public/Private/Consortium)
- Consensus Mechanism Used
- Permission Model (Open/Permissioned)
- Speed / Throughput (TPS if available)
- Smart Contract Support (Y/N + Language)
- Token Support (Native or not)
- Typical Use Case
- Notable Technical Feature (e.g., privacy, pluggable consensus)

Answer 2

Blockchain Name	Type	Consensus Mechanism	Permission Model	Speed / Throughput (TPS)	Smart Contract Support	Token Support	Typical Use Case	Notable Technical Feature
Ethereum	Public	Proof of Stake (PoS)	Open	~15-30 TPS	Yes (Solidity, Vyper)	Native (ETH)	Decentralized apps, DeFi, NFTs	High decentralization, EVM support
Hyperledger Fabric	Private	Pluggable (e.g., Raft)	Permissioned	1,000+ TPS (configurable)	Yes (Go, Java, Node.js)	No native token	Enterprise supply chain, finance	Modular architecture, privacy
R3 Corda	Consortium	Pluggable (Notary)	Permissioned	100s–1000s TPS	Yes (JVM languages)	No native token	Inter-bank, trade finance, KYC	Point-to-point privacy, legal focus

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Question 3
Write a Short Report (150–200 words):
- Compare and contrast the technical capabilities of each.
- Which platform would you choose for:
  - A decentralized app?
  - A supply chain network among known partners?
  - An inter-bank financial application?
- Justify your choice based on technical points.

Answer 3

Report:
Public, private, and consortium blockchains each have unique technical strengths. **Ethereum** is a public blockchain known for its high decentralization, open participation, and robust smart contract support (Solidity, Vyper). However, its throughput is relatively low (~15–30 TPS), and transaction fees can fluctuate during high demand.

Hyperledger Fabric is a private, permissioned blockchain optimized for enterprise use. It offers modular consensus, strong privacy controls, and high throughput (1,000+ TPS). Its smart contracts (chaincode) support multiple programming languages, but it does not have a native token, focusing instead on business logic and data privacy.

R3 Corda operates as a consortium blockchain, tailored for regulated industries like finance. It uses a unique notary-based consensus, supports JVM smart contracts, and emphasizes privacy through point-to-point data sharing. Corda is technically a distributed ledger, not a traditional blockchain, offering high throughput and legal compliance.

For a **decentralized app**, Ethereum is ideal due to its openness and developer ecosystem. For a **supply chain network among known partners**, Hyperledger Fabric is preferable because of its privacy and modularity. For an **inter-bank financial application**, R3 Corda is best, offering privacy, compliance, and interoperability suited for financial institutions.