DAY 6 – Task 2

We must choose one platform from each :

- 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)

So, I have Chosen:

1. Ethereum
2. Hyperledger Fabric
3. R3 Corda

Blockchain Platform Comparison

Here's the comparison : Ethereum, Hyperledger Fabric, and R3 Corda.

Feature	Ethereum	Hyperledger Fabric	R3 Corda
Blockchain Name	Ethereum	Hyperledger Fabric	R3 Corda
Type	Public	Private	Consortium
Consensus Mechanism Used	Proof-of-Stake (PoS) - Gasper	Pluggable (e.g., Raft, Kafka etc.)	Notary Services (Uniqueness, Immutability)
Permission Model	Open/Permissionless	Permissioned	Permissioned
Speed / Throughput (TPS)	~15-30 TPS (mainnet, before rollups)	1,000s to 10,000+ TPS (highly configurable)	200-1,000+ TPS (per node/transaction type)
Smart Contract Support	Yes (Solidity)	Yes (Java, Node.js)	Yes (CorDapps in Java, Kotlin)
Token Support	Native (ETH), ERC-20 etc.	Can be implemented via Chaincode	Can be implemented via CorDapps
Typical Use Case	dApps, DeFi, NFTs, Web3	Supply Chain, Healthcare	Financial Services, Trade Finance, Insurance
Notable Technical Feature	Large ecosystem, smart contract pioneer, flexibility scalability	Private data channels, identity management	Privacy-by-design

My Report:

Comparing these platforms with their respective distinct technical capabilities starting with **Ethereum**, a public blockchain, prioritizes decentralization and censorship resistance. Its open, permissionless nature and robust smart contract support make it ideal for public-facing, trustless applications where any user can participate. Its throughput is lower than permissioned chains but is being addressed by Layer 2 scaling solutions.

Hyperledger Fabric, a private blockchain, is designed for enterprise use cases where participants are known and have specific permissions. Its modular architecture allows for highly customized solutions with private data channels and pluggable consensus, leading to significantly higher transaction speeds and data privacy compared to public chains.

R3 Corda, a consortium blockchain, is specifically built for regulated industries, particularly finance. Its unique design focuses on direct peer-to-peer transactions between involved parties, ensuring privacy by not broadcasting all data. Corda emphasizes legal enforceability of smart contracts and offers high transaction finality, critical for inter-company agreements.

Platform Choices:

- **A decentralized app:** I would choose **Ethereum**. Its open nature, vast developer community, and native token support (for economic incentives and governance) are perfectly aligned with the principles of decentralized applications.
- **A supply chain network among known partners:** I would choose **Hyperledger Fabric** due to its permissioned model allows for controlled access, private data channels ensure confidentiality between specific partners, and its high throughput can handle large volumes of supply chain transactions efficiently.
- **An inter-bank financial application:** I would choose **R3 Corda** because of It's purpose-built for financial institutions, offering peer-to-peer transaction privacy, high finality, and legally enforceable smart contracts (CorDapps), which are crucial requirements for regulated inter-bank operations.