1. Blockchain Platform Comparison: Ethereum vs Hyperledger Fabric vs Quorum:

Blockchain Platform Comparison:	Type	Consensus Mechanism Used	Permission Model	Speed / Throughput (TPS)	Smart Contract Support	Token Support	Typical Use Case	Notable Technical Feature
Ethereum	Public	Proof of Stake (Ethereum 2.0)	Open	~15–45 TPS	Yes (Solidity, Vyper)	Native (Ether, ERC-20)	DApps, DeFi, NFTs	Fully decentralized, high smart contract compatibility
Hyperledger Fabric	Private	Pluggable (Raft, Kafka, Solo)	Permissioned	1000+ TPS	Yes (Go, Java, Node.js)	No native token	Supply chain, enterprise collaboration	Modular design, channels for privacy, pluggable consensus
Quorum	Consortium	Istanbul BFT, Raft	Permissioned	~200–2000 TPS	Yes (Solidity)	Native (Ether-compatible)	Interbank transfers, private financial apps	Privacy-preserving transactions, Ethereum-compatible

3.Short Report:

Blockchain Platform Technical Comparison Report

Ethereum, Hyperledger Fabric, and Quorum offer distinct technical capabilities tailored to different use cases. Ethereum is a public blockchain using Proof of Stake (PoS), offering decentralized security, smart contract support (Solidity/Vyper), and a native token (Ether). However, its throughput is relatively low (~15–45 TPS), making it better suited for open, decentralized applications where transparency is critical.

Hyperledger Fabric, a private blockchain, supports modular, pluggable consensus (like Raft/Kafka), achieves high throughput (1000+ TPS), and allows smart contracts (chaincode) in Go, Java, or Node.js. It lacks a native token but excels in privacy and enterprise-grade features like channels and permissioned access—ideal for consortiums and enterprise networks.

Quorum, a consortium blockchain, combines Ethereum's smart contract compatibility with permissioned control and privacy enhancements. It supports faster consensus algorithms like Istanbul BFT and Raft, and handles ~200–2000 TPS, making it suitable for financial systems requiring confidentiality and compliance.

Platform Selection:

- Decentralized app: *Ethereum* — due to its open nature and broad community support.
- Supply chain network among known partners: *Hyperledger Fabric* — for its permissioned model, high throughput, and privacy.
- Inter-bank financial application: *Quorum* — for its Ethereum compatibility, transaction privacy, and regulatory fit.

Each choice aligns with the platform’s strengths and targeted use case.