INFOSOFT IT SOLUTIONS

Training | Projects | Placements

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BLOCK CHAIN DEVELOPMENT

Introduction to Blockchain Technology

- Overview of blockchain fundamentals
- Key concepts: decentralized ledger, consensus mechanisms, cryptography
- Types of blockchains: public, private, consortium

Blockchain Architecture and Components

- Blockchain data structure (blocks, transactions, Merkle trees)
- Smart contracts and decentralized applications (DApps)
- Cryptographic hashing and digital signatures

Blockchain Platforms and Frameworks

- Ethereum blockchain platform overview
- Hyperledger Fabric and other enterprise blockchain frameworks

Solidity Programming Language

- Introduction to Solidity for smart contract development
- Syntax, data types, and control structures in Solidity
- Writing and deploying smart contracts on Ethereum

Smart Contract Development

- Design patterns for smart contracts
- Testing and debugging smart contracts
- Security considerations and best practices

Blockchain Development Tools

- Truffle Suite for Ethereum development
- Remix IDE and other development environments
- Integrating with Ganache for local blockchain testing

Decentralized Application (DApp) Development

- Building frontends for DApps using web3.js or ethers.js
- Interacting with smart contracts from DApps
- User authentication and authorization in DApps

Blockchain Security

- Security challenges in blockchain applications
- Auditing and securing smart contracts
- Implementing multisig wallets and secure key management

Blockchain Consensus Algorithms

- Overview of consensus mechanisms (Proof of Work, Proof of Stake, etc.)
- Practical implementation considerations
- Forks and governance in blockchain networks

Blockchain Integration and Scalability

- Interoperability between blockchain networks
- Scaling solutions (sharding, sidechains, Plasma)
- Integration with existing enterprise systems

Regulatory and Legal Considerations

- Compliance frameworks and regulations
- Blockchain in regulated industries (finance, healthcare, supply chain)
- Intellectual property and smart contract law