Blockchain Development for Oracle Blockchain Platform LVC

Application Development Learning Subscription

DURATION	MODULES	COURSE CODE
3 Days	**7 Lectures**	**—**

Course Overview

This course will be delivered with a live lab. TheBlockchain Development for Oracle Blockchain Platformcourse is targeted at developers and teaches how to create applications on the Oracle Blockchain Platform. It covers blockchain basics, the architecture of the Oracle Blockchain Platform, and practical experience in smart contract development.

What You Will Learn

Blockchain Overview: Features and Core Components

- Objectives
- What Is Blockchain?
- Use-Case: Transaction Problem
- Use-Case: Transaction Solution
- Why Blockchain?
- What is Blockchain?
- What Does a Block Contain?
- Block Characteristics
- Block Hash Example
- Connecting Blocks
- Distributed Ledger and Nodes
- What Do Nodes Do?
- Adding a New Block
- What is Consensus?
- Key Features of Blockchain
- Immutability
- Security in Blockchain
- Cryptography, Cryptographic Keys, and Hashing
- Secure Hashing Algorithm (SHA)
- Hashing: One Way Function
- Resistance to Data Tampering

- Characteristics of Blockchain
- Blockchain Use-Cases
- Bitcoin: Blockchain Example
- Applicability of Blockchain
- Summary

Exploring Oracle Blockchain Platform

- Objectives
- Oracle Blockchain Platform: Features
- Definitions
- Oracle Blockchain Platform Architecture
- Channels, Members, and Transactions
- Extended OBP Transaction Mechanics
- Organizations, Members and Peer Nodes
- OBP Interactions
- Smart Contract Deployment via OBP Console
- Summary

Creating Smart Contracts

- Objectives
- Create Smart Contracts
- Peer/Orderer Node Architecture
- Oracle Blockchain Platform and Berkeley DB
- Smart Contract (Chaincode Shim API)
- Overview of Chaincode Shim API
- Chaincode Life Cycle
- Implementing Chaincode Initialization
- Implementing Chaincode Business Logic
- Implementing Chaincode Query Logic
- Produce Request
- Produce Response
- Publish Events
- Subscribe to Events
- Receive Events
- Automate Smart Contract Development Using App Builder
- OBP Development Tools
- Set Up Development Environment
- Scaffold a Chaincode Project with App Builder
- Define Chaincode Assets
- OBP SDK Automations
- Deploy and Test Smart Contracts
- Deploy Local Hyperledger Fabric Network
- Prepare for Remote OBP Deployment
- Deploy to Remote OBP Network
- Testing Chaincode

- Summary

Accessing Oracle Blockchain Platform

- Objectives
- Oracle Blockchain REST APIs
- Query and Transactions REST API
- OBP Administration REST API
- REST API Tools
- Hyperledger Fabric SDK
- Application Integration with Blockchain Platform
- Summary

Oracle Blockchain Platform Security

- Objectives
- OBP Security Architecture
- Manage OBP Instance Security
- IDCS Access Management for OBP
- Permissions and Policies
- Oracle Blockchain Platform Roles
- Hyperledger Fabric Compatibility Roles
- Authentication and Authorization
- Authenticating REST Interactions (Basic)
- Authenticating REST Interactions (OAuth)
- Authorizing REST Interactions
- Fine-Grained Access Control Library
- Fine-Grained Access Control Overview
- Specify Identity Patterns
- Create Access Controls Lists
- Fine-Grained Access Control Code Structure
- Summary

Implementing Tokens

- Objectives
- Tokens
- Token Roles
- Token Roles and Behaviors
- Scaffold a Token Chaincode Project with App Builder
- Token Operations
- Ethereum Interoperability
- Executing Ethereum Smart Contracts on OBP
- Summary

Working with Rich History Database

- Objectives

- What's rich history database?
- Rich History Database
- Rich History Database Tables
- Query Rich History Database
- Private Data in a Channel
- Private Data Implementation
- Private Data Collections
- Limit Access to Rich History
- Summary