Blockchain Solution Architecture Training

Course Summary

Description
This Blockchain Architecture training is for technical leaders who need to make decisions about architecture, environment, and development platforms. The Certified Blockchain Solution Architecture exam is included with class.

Objectives
After taking this course, students will know:

- What is Blockchain
- How does Blockchain work
- Types of Blockchains
- How is Blockchain different from what we have today
- What are use cases for Blockchain
- What does a Blockchain app look like
- How do I design a Blockchain app
- How do I develop a Blockchain app
- How do I test a Blockchain app

Topics
- What is Blockchain
- How Does Blockchain Work
- Types of Blockchains
- How is Blockchain Different than What We Have Today
- What Does a Blockchain Application Look Like?
- How Do I Design a Blockchain Application?
- How Do I Develop a Blockchain Application?
- How Do I test a Blockchain Application?
- Use Cases for Blockchain

Duration
Three Days
Blockchain Solution Architecture Training

Course Outline

I. What is Blockchain
   A. Blockchain Basic Principles
   B. Centralized and Decentralized Ledgers
   C. Mechanics of Blockchain
   D. What is a Block?
   E. How are Blocks Chained Together?

II. How Does Blockchain Work
   A. Benefits and Drawbacks of Blockchain
   B. Cryptography
   C. Public Key Cryptography
   D. Cryptographic Hashing
   E. Blockchain Consensus
   F. Proof of Work Consensus
   G. Proof of Stake Consensus
   H. Other Consensus Mechanisms Explained
   I. Lifecycle of a Public Blockchain Transaction

III. Types of Blockchains
    A. Public vs Private Blockchains
    B. Open vs Closed Blockchains
    C. Open Source Blockchain Projects
    D. Blockchain Smart Contracts
    E. Tokens and Coins
    F. Using Gas in Ethereum
    G. “Blockless” Solution Platforms

IV. How is Blockchain Different than What We Have Today
    A. Types of Networks
    B. Centralized Networks
    C. Distributed Networks
    D. Decentralized Networks
    E. Software vs Firmware
    F. Blockchain vs Database

V. What Does a Blockchain Application Look Like?
    A. Blockchain Application Architecture
    B. Integrated Development Environment (IDE)
    C. User Interaction Layer
    D. Middle/Interface Layer
    E. Smart Contracts/Chaincode

VI. How Do I Design a Blockchain Application?
    A. Guiding Design Principles
    B. Personas (User Types)
    C. User Stories (Application Interaction)
    D. Application Functional Requirements
    E. Application Technical Requirements
    F. Design Tasks
    G. Fundamental Design Questions

VII. How Do I Develop a Blockchain Application?
    A. Fundamental Design Concepts
    B. Calling External Contracts
    C. Error Handling
    D. Pull vs Push Payments
    E. On-Chain Data
    F. Local Testing Recommendations
    G. Not Using Agile Development Process
    H. Technology Design Decisions
    I. Monolithic vs Modular
    J. Complexity Models

VIII. How Do I test a Blockchain Application?
     A. Blockchain Testing Approaches
     B. Unit Testing
     C. Developer Level Testing
     D. Configuration & Environment Testing
     E. Load/Performance Testing
     F. Volume/Stress Testing
     G. Regression Testing
     H. Application Bug Classifications
     I. User Load Testing
     J. Key Blockchain Architecture Testing Questions

IX. Use Cases for Blockchain
    A. Real world implementations of Blockchain

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