Developing Applications for the Java EE 7 Platform Ed 1

Course Duration: 40 Hours **Course code:EE7**

1. Course Overview

This course provides comprehensive training on developing enterprise applications using Java EE 7. Participants will learn to leverage Java EE technologies for building scalable, secure, and robust applications. The course emphasizes hands-on development, covering key Java EE APIs, application architecture, and deployment on a Java EE 7-compliant application server.

2. What you'll learn?

By the end of the course, participants will be able to:

- Understand the Java EE 7 platform and its architecture
- Develop enterprise applications using Java EE APIs
- Implement web, business, and persistence layers using Java EE
- Secure applications using Java EE security mechanisms
- Use EJBs, JMS, and CDI for building robust applications
- Deploy and monitor Java EE applications on enterprise servers
- Integrate web services and RESTful APIs into Java EE applications

3. Target Audience

- Java Developers transitioning to enterprise application development
- Software Engineers working on scalable and secure Java applications
- Application Architects seeking hands-on experience with Java EE 7

4. Pre-Requisites

Familiarity with:

- Core Java SE concepts (Java 8 recommended)
- Object-Oriented Programming (OOP) principles
- Web development basics (HTML, CSS, JavaScript)

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- JDBC and basic database concepts

5. Course content

Module 1: Course Introduction

- Introduction to the Course
- Course Contents and Learning Objectives

Module 2: Introduction to Java EE 7

- Overview of the Java EE Platform
- Key Components and Architecture
- Java EE 7 APIs and Features
- Benefits and Use Cases

Module 3: Developing Web Applications

- JavaServer Faces (JSF) Basics
- Servlets and JSPs
- Managing Web Application Lifecycle
- Handling Forms, Sessions, and Cookies

Module 4: Enterprise JavaBeans (EJB) Development

- Introduction to EJB 3.2
- Session Beans and Message-Driven Beans
- Dependency Injection and Interceptors
- Transaction Management

Module 5: Contexts and Dependency Injection (CDI)

- CDI Overview and Benefits
- Managing Beans and Scopes
- Events and Observers
- Integrating CDI with EJBs and JSF

Module 6: Persistence and Database Integration

- Java Persistence API (JPA) Overview
- Entity Mapping and Relationships
- Querying Data Using JPQL and Criteria API
- Transactions and Concurrency Management

Module 7: Web Services Development

- Developing RESTful Web Services (JAX-RS)
- Developing SOAP Web Services (JAX-WS)
- Consuming Web Services in Java EE Applications
- Error Handling and Security

Module 8: Java Messaging Service (JMS) and Asynchronous Processing

- JMS Concepts and Architecture
- Point-to-Point and Publish/Subscribe Models
- Message Producers and Consumers
- Integrating JMS with EJBs

Module 9: Security in Java EE Applications

- Java EE Security Architecture
- Authentication and Authorization
- Role-Based Access Control
- Secure Communication and Data Protection

Module 10: Application Deployment and Monitoring

- Packaging Java EE Applications (WAR, EAR)
- Deploying to Java EE 7 Application Servers
- Monitoring and Logging Applications
- Performance Optimization Best Practices

Module 11: Hands-On Labs and Exercises

- Building a Multi-Tier Java EE Application
- Implementing Web and Business Layers
- Securing and Deploying Applications
- Integrating Web Services and Messaging

Module 12: Best Practices and Course Wrap-Up

- Design Guidelines for Enterprise Applications
- Security and Performance Best Practices
- Summary of Key Concepts
- Q&A

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