Advanced Java Certification Course

Course Duration: 90 Days

Topics & Details

Introduction to Advanced Java

★ What is Advanced Java?

- Overview of Advanced Java

- Difference between Core Java and Advanced Java

★ Setting Up the Environment

- Installing necessary tools (JDK, Apache Tomcat, Maven)

- Setting up an IDE (Eclipse, IntelliJ IDEA, NetBeans)

Lesson 2: Java Database Connectivity (JDBC)

★ JDBC Basics

- Introduction to JDBC

- JDBC Architecture

★ Connecting to a Database

- Loading the driver

- Establishing a connection

- Creating and executing SQL statements

★ CRUD Operations

- Insert, Update, Delete, and Select operations

- Handling ResultSet

★ Advanced JDBC

- PreparedStatement and CallableStatement

- Batch processing

- Transactions
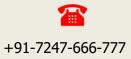
Lesson 3: Servlets

★ Introduction to Servlets

   - What are Servlets?

   - Servlet lifecycle

★ Creating Servlets

   - Writing and deploying a simple servlet

   - Handling HTTP requests and responses

★ Servlet Configuration

   - Initialization parameters

   - Context parameters

★ Session Management

   - HTTP session

   - Cookies

   - URL rewriting

★ Introduction to JSP

   - What is JSP?

   - JSP lifecycle

★ JSP Elements

   - Directives

   - Scriptlets

   - Expressions

   - Declarations

★ JSP Implicit Objects

   - Request, Response, Session, Application, etc.

★ JSP Tag Libraries

   - Using standard tag libraries

- Custom tags

Lesson 5: JavaBeans

★ Introduction to JavaBeans

- What is a JavaBean?

- Properties, getters, and setters

★ Using JavaBeans in JSP

- Declaring and using beans in JSP pages

Lesson 6: Java Messaging Service (JMS)

★ Introduction to JMS

- What is JMS?

- JMS architecture

★ Messaging Models

- Point-to-Point

- Publish/Subscribe

★ JMS API

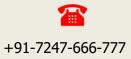- Creating a simple JMS application

Lesson 7: JavaMail API

★ Introduction to JavaMail API

- Sending and receiving emails

★ Configuring JavaMail

- SMTP, POP, and IMAP configurations

★ Sending Emails

- Creating and sending email messages

- Sending attachments

Lesson 8: Web Services

★ Introduction to Web Services

- What are web services?

- SOAP vs REST

★ Creating RESTful Web Services

- Using JAX-RS

- Creating a simple RESTful service

★ Consuming RESTful Web Services

- Using Java to consume web services

Lesson 9: Spring Framework

★ Introduction to Spring Framework

- Overview of Spring

- Spring modules

★ Spring Core

- Dependency Injection

- Inversion of Control

★ Spring MVC

- Setting up a Spring MVC project

- Creating controllers and views

★ Spring Boot

- Introduction to Spring Boot

- Creating a Spring Boot application

Lesson 10: Hibernate

★ Introduction to Hibernate

- Overview of Hibernate

- Advantages of Hibernate

★ Hibernate Basics

- Setting up Hibernate

- Mapping classes to database tables

★ CRUD Operations with Hibernate

- Creating, reading, updating, and deleting records

★ Advanced Hibernate

- HQL (Hibernate Query Language)

- Criteria API

- Caching

Lesson 11: Spring and Hibernate Integration

★ Configuring Spring and Hibernate

- Setting up the integration

- Configuring transaction management

★ DAO Pattern

- Implementing DAO pattern with Spring and Hibernate
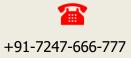
Lesson 12: Microservices with Spring Boot

★ Introduction to Microservices

- What are microservices?

- Benefits of microservices

★ Building Microservices with Spring Boot

- Creating a simple microservice

- Communication between microservices

★ Spring Cloud

- Using Spring Cloud for microservices

Lesson 13: Advanced Topics

★ Security

- Introduction to Spring Security

- Implementing authentication and authorization

★ Performance Tuning

- Java performance tuning techniques

- Profiling and monitoring

★ Concurrency and Multithreading

- Advanced multithreading techniques

- Executors framework

- Concurrency utilities

Lesson 14: Practical Project

- Developing a comprehensive web application (e.g., an e-commerce site, social media platform, or online booking system)

- Applying all learned concepts