# Full Stack Java Developer- Industrial Java Training



Full Stack Java Developer



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# **SYLLABUS**

Developer

#### 1. CORE JAVA

- 1.1. Introduction To Java
- 1.2. Java History
- 1.3. Why Java
- 1.4. Features of Java
- 1.5. Environment Setup
- 1.6. Hello World Application
- 1.7. Java Program Internal
- 1.8. JDK, JRE, JVM
- 1.9. JVM- Java Virtual Machine
- 1.10. Class, Objects, Data Types
- 1.11. Variables
- 1.12. Type Casting
- 1.13. Operators
- 1.14. Java Comments
- 1.15. Object Oriented Programming Concepts
  - 1. Abstraction
  - 2. Encapsulation
  - 3. Polymorphism
  - 4. Inheritance
- 1.16. Java Coding Standards
- 1.17. Package Creating package, naming package
- 1.18. Java Keywords
- 1.19. Access Specifiers Public, Private, Protected, Default
- 1.20. Static Concept Block, Variable, Method, Class
- 1.21. Scanner Class
- 1.22. Control Statement If, If...else, Nested if...else and Switch Case
- 1.23. Java Break Statement
- 1.24. Java Continue Statement
- 1.25. Flow Statement- for, while, do..while
- 1.26. Constructor- Default, Parameterized
- 1.27. Inheritance
- 1.28. Extends, super and this keyword
- 1.29. Method Overloading, Method Overriding
- 1.30. Interface
- 1.31. Abstract Class
- 1.32. Abstract Class vs Interface
- 1.33. Garbage Collection
- 1.34. Marker Interface
- 1.35. Serialization
- 1.36. Transient

- 1.37. Java instanceof
- 1.38. Instance initializer block
- 1.39. Volatile Keyword in Java
- 1.40. Exception Handling
- 1.41. Exception Handling- try, catch, throw, throws, finally
- 1.42. String Concept
  - String Basics
  - String Methods
- 1.43. String Buffer
- 1.44. String Builder
- 1.45. Custom Immutable Class
- 1.46. Java Arrays
- 1.47. Collection Framework
  - Collection Basics
  - Iterator Interface
  - Methods of Collection Interface
  - 1. List
    - A] Array List
    - B] Linked List
    - C] Vector
  - 2. Set
    - A] Hash Set
    - B] Tree Set
  - 3. Map
    - A] Hash Map
    - B] Tree Map
    - C1 Hashtable
  - 1.48. Collection Framework Advance Concepts
    - 1. Comparable Interface
    - 2. Comparator Interface
    - 3. Collections class
    - 4. Differentiate Comparable and Comparator
- 1.49. Java Enum
- 1.50. Date Concept
- 1.51. File Handling Concept
  - 1. File Handling Basics
  - 2. Create Folder
  - 3. Create File-.txt..pdf, .xlsx, .docs, etc
  - 4. Write File
  - 5. Read File
  - 6. Delete File
- 1.52. Thread
  - 1. Concept, Lifecycle
  - 2. Extends Thread
  - 3. Implement Runnable Interface
  - 4. Thread Priorities
  - 5. Thread Methods
- 1.53. Multithreading
- 1.54. Thread Synchronization
  - 1. Synchronization
  - 2. Object Locking

- 3. Inter Thread Communication
- 1.55. JDK 1.8.0 New Features with Hands-on
  - 1. Lambda Expression
  - 2. Functional Interface
  - 3. Default Method in Interface
  - 4. Static Method in Interface
  - 5. Method References
  - 6. Date Time API
  - 7. Stream API
  - 8. Collectors
  - 9. For each Loop
  - 10. String Joiner Class
  - 11. Parallel Sort
  - 12. Optional Class
- 1.56. Java Mail API- Realtime Live Implementation

## Programming practices, Concepts & Interview Preparation

#### 2. **J2EE**

## **2.1 JDBC**

- 1. JDBCIntroduction
- 2. JDBC Architecture
- 3. DatabaseOverview
- 4. JDBC Basics
- 5. MySQL
- 6. Create Database
- 7. Create Table
- 8. Insert, Update, Delete
- 9. Truncate
- 10. SQL Join
  - Inner Join
  - Left Outer Join
  - Right Outer Join
  - Full Outer Join
- 11. Aggregate Function
  - 1. MIN
  - 2. MAX
  - 3. AVG
  - 4. SUM
  - 5. COUNT
- 12. SQL HAVING Clause
- 13. GROUP BY
- 14. ORDER BY
- 15. SQL Aliases
- 16. SQL LIKE Operator
- 17. SQL IN
- 18. SQL NOT IN
- 19. SQL Between
- 20. SQL Null Values
- 21. SQL TOP

- 22. SQL LIMIT
- 23. SQL Stored Procedures
- 24. Java Application Using JDBC Connectivity
- 25. Handling SQL Exceptions
- 26. DriverManager
- 27. ResultSet
- 28. Connection
- 29. Statement
- 30. Prepared Statement
- 31. Collable Statement
- 32. DB Connectivity Steps
- 33. Store Image in SQL
- 34. Read Image in SQL
- 35. SQL Queries using SQLYog
- 36. JDBC CRUD Application

#### 2.2 Servlet

- 2.2.1 Servlet Basics
- 2.2.2 Need of Server Side Programming
- 2.2.3 Servlet Life

Cycle 1 Init()

- 2 Service()
  - 2.1 doGet()
  - 2.2 doPost()
- 3 Destroy()
- 2.2.4 Servlet Hello World Application
- 2.2.5 Web.xml Structure
- 2.2.6 Servlet Directives- include(), forword(), sendRedirictive()
- 2.2.7 HttpServletRequest, HttpServletResponse in Servlet
- 2.2.8 Servlet and JDBC Integration
- 2.2.9 Servlet, HTML 5, MySQL-JDBC, Apache Tomcat using Real Time Login Application
- 2.2.10 Servlet, JSP, MySQL-JDBC, Apache Tomcat using Custom CRUD Application
- 2.2.11 Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom Sign Up | Sign In Application

#### 2.1 **JSP**

- 2.1.1 JSP Basics
- 2.1.2 Creating dynamic Web content with JSP
- 2.1.3 Scriplet
- 2.1.4 Declaration
- 2.15 Servlet, JSP, MySQL- JDBC, Apache Tomcat Login Application
- 2.1.6 Servlet, JSP, MySQL- JDBC, Apache Tomcat using User Sign Up | Sign In Application
- 2.1.7 Servlet, JSP, MySQL- JDBC, Apache Tomcat Using Advanced Custom Project Implementation

Programming practices, Concept & Interview Preparation.

# Developer

#### 3. FRAMEWORK

#### 3.1. Hibernate

- 1. Hibernate Introduction
- 2. Hibernate Basics

- 3. Hibernate Architecture
- 4. Hibernate Session
- 5. Hibernate SessionFactory
- 6. Hibernate Configuration
- 7. Hibernate Configuration Offline
- 8. Hibernate with HBM
- 9. Hibernate with Annotation
- 10. Hibernate Validator
- 11. Hibernate CRUD
- 12. Hibernate Association Mapping
  - 1. One to One Mapping
  - 2. One to ManyMapping
  - 3. Many to One Mapping
  - 4. Many to Many Mapping
- 13. Hibernate Aggregation
- 14. Hibernate Named Oueries
- 15. Hibernate Native SQL
- 16. HQL- Hibernate Query Language
- 17. Hibernate HCQL- Criteria Query Language
- 18. Hibernate Application with Mysql DB-CRUD
- 19. Diff. save(), saveOrUpdate(), update(), persist() and merge()
- 20. Diff. get() and load()
- 21. Hibernate vs. JPA
- 22. Hibernate Application with Mysql DB, Servlet, JSP-User Interface-CRUD
- 23. Hibernate, MySQL, Servlet, JSP, Apache Tomcat Login Application
- 24. Hibernate, MySQL, Servlet, JSP, Apache Tomcat Sign Up | Sign In Application
- 25. Hibernate, MySQL, Servlet, JSP, Apache Tomcat Advanced Custom Project Implemenation Programming practices, Concept & Interview Preparation.

## 3.2. Spring Framework

- 1. Spring Framework Introduction
- 2. Spring Basics
- 3. Inversion of Control
- 4. Dependency Injection
- 5. Beans Scope
  - 5.1 Singleton
  - 5.2 Prototype
  - 5.3 Request
  - 5.4 Session
  - 5.5 Global-Session
- 6. Auto wiring
- 7. Spring Annotations

### 3.3. Spring MVC

- 1. Spring MVC Basics
- 2. Spring MVC Annotations
- 3. Spring MVC Hello World Application
- 4. Spring MVC Restful Web Services Basics
- 5. Spring MVC without Maven
- 6. Apache Maven Basics

- 7. Spring MVC with Maven
- 8. Spring MVC Application Deployment
- 9. Spring MVC Application Deployment with Loggers
- 10. Spring MVC WAR File Creation and Deployment Steps
- 11. Spring MVC, Hibernate, Mysql, Apache Maven, Apache Tomcat- CRUD Operation
- 12. Java, Spring MVC, Spring Security, Algorithm, Hibernate, Maven, MysqlIntegrationApplication 1. Modules-
  - 1. Customer Login
  - 2. Add Customer
  - 3. Edit Customer Information
  - 4. Delete Customer
  - 5. View Customer List
  - 6. Roles
  - 7. Admin Role
  - 8. DBA Role
  - 9. User Role
  - 10. Password Encryption by using Spring Security Algorithm
  - 11. Remember Me Functionality

## 3.4. Spring Security

- 1. Spring Security Basics
- 2. Spring Security Features
- 3. Spring Security Authentication
- 4. Spring Security Encryption
- 5. Password Encryption by using Spring Security
- 6. Spring Security Login Form
- 7. Spring Security Authentication
- 8. Spring Security Maven Dependency
- 9. Spring Security CRUD- Signup and Login Application
- 10. Spring Security OAuth2 RealTime Implementation
- 11. Spring Boot End Points Security
- 12. Spring Boot, Spring Security- Restful Web Services with Advanced Authentication
- 13. Single Sign-On with Spring Boot & Okta | OAuth 2.0

## 3.5. Spring Boot

- 1. Spring Boot Introduction
- 2. Spring Boot Basics
- 3. Why Spring Boot
- 4. Spring Boot Features
- 5. Main Goal of Spring Boot
- 6. Creating Project- Spring Initializer
- 7. Spring Boot Hello World Application
- 8. Spring Boot Annotations
- 9. Spring Boot Devtool Dependency-Without Restart application will see changes on browser
- 10. Spring Boot Actuator
- 11. Spring Boot Build Systems

- 12. Spring Boot Code Structure
- 13. Spring Boot Runners
- 14. Spring Boot Tomcat Custom Port Number
- 15. Spring Boot with RESTFul Service
- 16. Spring Boot with Logger
- 17. Deploy Spring Boot Applications on External Tomcat Server
- 18. Spring Boot Common Application Properties (application.properties)
- 19. Spring Boot, Hibernate with RESTFul Web Service
  - 20. Spring Boot, Spring Data with RESTFul Web Service
  - 21. Spring Boot, Hibernate CRUD Application
  - 22. Spring Boot, Spring Data JPA CRUD Application
  - 23. Spring Boot, Spring- JDBCTemplate CRUD
  - 24. Spring Boot, Hibernate, MySQL, Project Lombok CRUD Application
  - 25. Spring Boot with XML Payload using Postman API
  - 26. Spring Boot with JSON Payload using Postman API
  - 27. Spring Boot Global Custom Validations
  - 28. Spring Boot Global Custom Exception Handling
  - 29. Spring Boot Code Debug Practices
  - 30. Spring Boot Application connectivity with Multiple Databases
  - 31. Spring Boot CORS Support
  - 32. Java QR Code Generator Basics
  - 33. Spring Boot QR Code Generator Hands on Session
  - 34. Spring Boot QR Code Reader Hands on Session
  - 35. Spring Boot Advanced Research and Development with latest release

## 3.6. Spring Data- JPA

- 1. Spring Data JPA Basics
- 2. Spring Data JPA Introduction
- 3. Spring Data JPA Architecture
- 4. Spring Data JPA application.properties file
- 5. JPA Repository
- 6. CRUD Repository
- 7. Spring Boot, Spring Data JPA CRUD using Postman API
- 8. Spring Boot, Spring Data JPA, Project Lombok CRUD using Postman API Hands on Session

#### 3.7. JUnit- Mockito Framework

- 1. What is Unit testing
- 2.What is JUnit
- 3.JUnit Rules
- 4. JUnit Arithmetic Application Example
- 5. Mockito Introduction
- 6.Mockito Annotations
- 7. Mockito Setup
- 8. What is Mocking
- 9. Need for mocking
- 10. Methods of Mockito
- 11. Mockito mock() method
- 12. Mockito when() method
- 13. Mockito verify() method
- 14. Mockito doNothing() method

- 15. Mockito times() method
- 16. PowerMock
- 17. JUnit Mockito Hibernate CRUD
- 18. JUnit Mockito JPA CRUD
- 19. JUnit Mockito JDBCTemplate CRUD

## 3.8. Spring- JDBCTemplate

- 1. Spring JDBCTemplate Introduction
- 2. RowMapper
- 3. Builder
- 4. Spring Boot, JDBCTemplate using Postman API Hands on Session
- 5. Industrial Practices for Spring Boot JDBCTemplate
- 6. Spring Boot JDBCTemplate CRUD Application
- 7. Spring Boot JDBCTemplate SignUp | SignIn Application
- 8. Real Time Signup and Signin Application using JDBCTemplate
- 9. Advanced Research and Development for JDBCTemplate using Spring Boot

#### 4. WEB SERVICES

- 4.1. SOAP Web Service
- 4.2. RESTful Web Service

## 5. Design Pattern

- 5.1. Singleton Design Pattern
- 5.2. Builder Design Pattern
- 5.3. Factory Pattern
- 5.4. Abstract Factory Pattern
- 5.5. Prototype Pattern
- 5.6. Facade Pattern
- 5.7. Adapter Pattern
- 5.8. Filter Pattern
- 5.9. Composite Pattern
- 5.10. Decorator Pattern
- 5.11. Proxy Pattern
- 5.12. Iterator Pattern
- 5.13. Bridge Pattern
- 5.14. Flyweight Pattern
- 5.15. MVC Pattern

#### 6. MICROSERVICES

- 6.1. Microservices Introduction
- 6.2. Microservices Architecture
- 6.3. Microservices Project Structure
- 6.4. Microservices Frameworks
- 6.5. Spring Boot with Microservices Basics
- 6.6. Spring Boot with Microservices Coding Standards

- 6.7. Spring Boot with Microservices Builder Design Pattern
- 6.8. Spring Boot with Microservices QR Code Generator
- 6.9. Application.properties vs application.yml file
- 6.10. Spring Boot, Hibernate, Maven, MySQL CRUD Application- POSTMAN API
- 6.11. Spring Boot, Spring Data- JPA, Maven, MySQL CRUD Application- POSTMAN API
- 6.12. Spring Boot, Spring Data- JDBCTemplate, Maven, MySQL CRUD Application
- 6.13. Spring Boot, ORM, Microservices with Project Lombok
- 6.14. Spring Boot, CORS, Spring Data[JDBCTemplate], Microservices CRUD with Project Lombok using React JS
- 6.15. Creating Multiple Services using Spring Boot
- 6.16. Logger with Microservices
- 6.17. Rest Template and RestTemplateVO Implementation
- 6.18. Set port number and application name for each service
- 6.19. Service Registry- Eureka Server
- 6.20. API Gateway for traverse centralize request
- 6.21. Hystrix DashBoard
- 6.22. Zipkin
- 6.23. Sleuth
- 6.24. Trace Application- System Health
- 6.25. Trace Fallback controller
- 6.26. Trace Services are up/down using controller service
- 6.27. Trace Dependent Services
- 6.28. Trace Controller | Methods and Services how many times used/hit
- 6.29. Advanced Level Research and Development for Microservices
- 6.30. Microservices HRM/Payroll Application
- 6.31. Microservices Customer | Product | Payment Order Application

### 7. WEB DESIGN

- 7.1. HTML 5
- 7.2. CSS 3
- 7.3. JavaScript
- 7.4. Bootstrap
- 7.5. Payment Gateway Integration
- 7.6. Domain and Hosting
- 7.7. Website Deployment and Go Live

#### 8. React JS

- 8.1. React JS Basics
- 8.2. React JS Features
- 8.3. React JS Setup and Hello World Application
- 8.4. React JS JSX
- 8.5. React JS Component
- 8.6. React JS State
- 8.7. React JS Props
- 8.8. React JS Constructor
- 8.9. React JS Lifecycle
- 8.10. React JS Events

- 8.11. React JS Router
- 8.12. React JS Forms
- 8.13. React JS Tables
- 8.14. React JS Portals
- 8.15. React JS ES6
- 8.16. React JS CSS
- 8.17. React JS Hook
- 8.18. React JS and Back End Integration
- 8.19. React JS Using Back End CRUD Application
- 8.20. React JS, JDK 1.8, Spring Boot, Hibernate, Maven, MySQL, Microservices, Project Lombok- Project Implementation

## **9. AWS**

- 9.1 What is AWS
- 9.2 Introduction to AWS Services
- 9.3 Amazon Cloud Services
- 9.4 Create EC2 Instance in AWS
- 9.4 Deploy Spring Boot Application on AWS | Elastic Beanstalk
- 9.5 AWS Advanced Research and Development- Live Deployment

#### 10. INDUSTRIAL ADVANCE CONCEPTS

- 6.1. SVN
- 6.2. Jenkin
- 6.3. JIRA
- 6.4. Postman API
- 6.5. GIT
- 6.6. Maven
- 6.7. JUnit
- 6.8. JSON
- 6.9. XML
- 6.10. Spring Boot JMS ActiveMQ | RabitMQ
- 6.11. Apache Kafka
- 6.12. JUnit- Mockito
- 6.13. REST API Documentation Tool | Swagger UI
- 6.14. Code Analysis using SonarQube
- 6.15. Code Coverage With Jacoco
- 6.16. Spring Boot with Docker
- 6.17. Spring Boot Kubernetes
- 6.18. Principles of SOLID
- 6.19. DevOps- CI/CD
- 6.20. Agile Methodology
- 6.21. Data Structure and Algorithms

#### 11. INDUSTRIAL SOFTWARES

- 1. JDK 1.8
- 2. Eclipse
- 3. IntelliJ IDEA
- 4. Apache Tomcat
- 5. Apache Maven
- 6. MySQL
- 7. SQLYog
- 8. Node.is
- 9. Sublime
- 10. Visual Studio Code

## 12. INTERVIEW QUESTIONS & PREPARATIONS

- Developer Life
- Programming practices
- Concepts
- Interview Preparation
- Career Guidance
- Professional Consultation

### 15+ Industrial Projects with JDK 1.8

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