



HB Education and Consulting Services (P) Ltd  
New No.89, Old No. 39/40,1<sup>st</sup> Main Road,  
Gandhi Nagar, Adyar, Chennai – 6000 020  
Mobile: +91-9884987719, +91-8939308896  
Email: education@hbservices.in Web: www.hbservices.in

## **Full Stack Java Course Content – HB Services**

### **1. CORE JAVA**

- Introduction To Java
- Java History
- Why Java
- Features of Java
- Environment Setup
- Hello World Application
- Java Program Internal
- JDK, JRE, JVM
- JVM- Java Virtual Machine
- Class, Objects, Data Types
- Variables
- Type Casting
- Operators
- Java Comments
- Object Oriented Programming Concepts

#### 1. Abstraction

#### 2. Encapsulation

#### 3. Polymorphism

#### 4. Inheritance

- Java Coding Standards

- Package – Creating package, naming package

- Java Keywords

- Access Specifiers – Public, Private, Protected, Default

- Static Concept – Block, Variable, Method, Class

- Scanner Class

- Control Statement – If, If...else, Nested if...else and Switch Case

- Java Break Statement

- Java Continue Statement

- Flow Statement- for, while, do..while

- Constructor- Default, Parameterized

- Inheritance

- Extends, super and this keyword

- Method Overloading, Method Overriding

- Interface

- Abstract Class

- Abstract Class vs Interface

- Garbage Collection

- Marker Interface



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Serialization  
Transient  
Java instanceof  
Instance initializer block  
Volatile Keyword in Java  
Exception Handling  
Exception Handling- try, catch, throw, throws, finally  
String Concept

- String Basics
- String Methods

String Buffer  
String Builder  
Custom Immutable Class  
Java - Arrays  
Collection Framework

- Collection Basics
- Iterator Interface
- Methods of Collection Interface

1. List
  - A]
  - Array
  - List
  - B]
  - Linke
  - d List
  - C]
  - Vect
  - or
2. Set
  - A]
  - Ha
  - sh
  - Set
  - B]
  - Tre
  - e
  - Set
3. Map
  - A]
  - Has
  - h
  - Map
  - B]
  - Tree
  - Map
  - C]



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- Has
- htab
- le
- Collection Framework Advance Concepts
- 1. Comparable Interface
- 2. Comparator Interface
- 3. Collections class
- 4. Differentiate Comparable and Comparator
- Java Enum
- Date Concept
- 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
- Thread
- 1. Concept, Lifecycle
- 2. Extends Thread
- 3. Implement Runnable Interface
- 4. Thread Priorities
- 5. Thread Methods
- Multithreading
- Thread Synchronization
- 1. Synchronization
- 2. Object Locking
- 3. Inter Thread Communication
- 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
- Java Mail API- Realtime Live Implementation

Programming practices, Concepts & Interview Preparation

## 2. J2EE

### JDBC



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1. JDBC Introduction
2. JDBC Architecture
3. Database Overview
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. Callable Statement
32. DB Connectivity Steps
33. Store Image in SQL
34. Read Image in SQL
35. SQL Queries using SQLYog
36. JDBC CRUD Application



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## Servlet Basics

### Need of Server Side Programming

Servlet

Life

Cycle

1 Init()

2 Service()

doGet()

do

Post

Method

Dispatch

Servlet

Example

Servlet Hello World Application

Web.xml Structure

Servlet Directives- include(), forward(), sendRedirect()

HttpServletRequest, HttpServletResponse in Servlet

Servlet and JDBC Integration

Servlet, HTML 5, MySQL-JDBC, Apache Tomcat using Real Time Login Application

Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom CRUD Application

Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom Sign Up | Sign In Application

## JSP

JSP Basics

Creating dynamic Web content with JSP

Scriptlet

Declaration

Servlet, JSP, MySQL- JDBC, Apache Tomcat Login Application

Servlet, JSP, MySQL- JDBC, Apache Tomcat using User Sign Up | Sign In Application

Servlet, JSP, MySQL- JDBC, Apache Tomcat Using Advanced Custom Project Implementation

Programming practices, Concept & Interview Preparation.

## 3. FRAMEWORK

### Hibernate

1. Hibernate Introduction
2. Hibernate Basics
3. Hibernate Architecture
4. Hibernate Session
5. Hibernate SessionFactory
6. Hibernate Configuration



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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 OneMapping
  4. Many to Many Mapping
13. Hibernate Aggregation
14. Hibernate Named Queries
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 ImplemenationProgramming practices, Concept & Interview Preparation.

## **Spring Framework**

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

## **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



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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- CRUOperation
12. Java, Spring MVC, Spring Security, Algorithm, Hibernate, Maven, Mysql  
IntegrationApplication
  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

## **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

## **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



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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

### **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





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## **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

## **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



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#### **4. WEB SERVICES**

- SOAP Web Service
- RESTful Web Service

#### **5. Design Pattern**

- Singleton Design Pattern
- Builder Design Pattern
- Factory Pattern
- Abstract Factory Pattern
- Prototype Pattern
- Facade Pattern
- Adapter Pattern
- Filter Pattern
- Composite Pattern
- Decorator Pattern
- Proxy Pattern
- Iterator Pattern
- Bridge Pattern
- Flyweight Pattern
- MVC Pattern

#### **6. MICROSERVICES**

- Microservices Introduction
- Microservices Architecture
- Microservices Project Structure
- Microservices Frameworks
- Spring Boot with Microservices Basics
- Spring Boot with Microservices Coding Standards
- Spring Boot with Microservices Builder Design Pattern
- Spring Boot with Microservices QR Code Generator
- Application.properties vs application.yml file
- Spring Boot, Hibernate, Maven, MySQL CRUD Application- POSTMAN API
- Spring Boot, Spring Data- JPA, Maven, MySQL CRUD Application- POSTMAN API
- Spring Boot, Spring Data- JDBCTemplate, Maven, MySQL CRUD Application
- Spring Boot, ORM, Microservices with Project Lombok
- Spring Boot, CORS, Spring Data[JDBCTemplate], Microservices CRUD with Project Lombok using React JS
- Creating Multiple Services using Spring Boot
- Logger with Microservices
- Rest Template and RestTemplateVO Implementation



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Set port number and application name for each service  
Service Registry- Eureka Server  
API Gateway for traverse centralize request  
Hystrix DashBoard  
Zipkin  
Sleuth  
Trace Application- System Health  
Trace Fallback controller  
Trace Services are up/down using controller service  
Trace Dependent Services  
Trace Controller | Methods and Services how many times used/hit  
Advanced Level Research and Development for Microservices  
Microservices HRM/Payroll Application  
Microservices Customer | Product | Payment Order Application

## 7. WEB DESIGN

HTML 5  
CSS 3  
JavaScript  
Bootstrap  
Payment Gateway Integration  
Domain and Hosting

## 8. Website Deployment and Go Live

## 9. INDUSTRIAL SOFTWARES

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



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## 10. INTERVIEW QUESTIONS & PREPARATIONS

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

For more details, please Call or Whatsapp +91-9884987719