

Java Full stack Development Course Content

Introduction

1. What is Front End Development
2. Front End Technologies
3. What is Back End Development
4. Backend Development Technologies
5. What is Full stack Development
6. Advantages of Full stack Development
7. Roles of Full stack Developer

Module-1: Backend Development

Core Java

8. What is Programming Language?
9. Types of programming languages
10. Java Introduction
11. History of Java
12. Principles of Java
13. Java Installation

14. Java Program Execution Flow
15. JDK vs JRE
16. JVM Architecture
17. Identifiers & Keywords
18. Data Types
19. Variables
20. Methods
21. Arrays
22. Strings Handling
23. Object Oriented Principles
24. Constructors
25. Interfaces
26. Programs related to OOPs
27. Final classes
28. Abstract Class
29. Exception handling
30. Multi-Threading
31. Concurrency Package
32. Executor Framework
33. Synchronization
34. Lock mechanism
35. Serialization

36. Wrapper classes
37. Auto Boxing, Un-Boxing
38. Java Memory Management
39. Class Loader Implementation
40. Variable Arguments
41. File IO Operations
42. Introduction to Collection Framework
43. List
44. Set
45. Map
46. Properties
47. Internal implementation of collection framework (List, Map, Set etc)
48. Java 8 Features Introduction
49. Lambda Expressions
50. Functional Interfaces
51. Default & Static Methods
52. Method References
53. Date and Time API changes
54. Stream API
55. Optional class
56. Spliterator

Advanced Java

- 57. Introduction to Advanced Java
- 58. Introduction to Database
- 59. Types of databases
- 60. Database Environment Setup
- 61. DB Table Creation
- 62. Table Altering
- 63. CRUD Operations
- 64. Primary Keys
- 65. Foreign Keys
- 66. JDBC Introduction
- 67. JDBC API Details
- 68. JDBC Architecture
- 69. JDBC Driver
- 70. Driver Manager
- 71. Connection
- 72. Statement
- 73. Prepared Statement
- 74. Callable Statement
- 75. Result Set

76. What is Dao Layer?
77. Steps to create JDBC Application
78. JDBC Applications Development
79. CRUD Operations
80. Connection Pooling
81. Most common exceptions in JDBC apps
82. Servlets
83. What is web application?
84. Web application architecture
85. Client & Server
86. Http Protocol
87. What is Servlet?
88. Servlet API
89. Servlet Life Cycle
90. Steps to create Servlet
91. Deployment Descriptor
92. Servlet interface
93. Generic Servlet class
94. HttpServlet class
95. HttpServletRequest
96. HttpServletResponse
97. ServletConfig

- 98. ServletContext**
- 99. Init Params**
- 100. Context Params**
- 101. Forms development**
- 102. Cookies**
- 103. Hidden variables**
- 104. Session Tracking in Servlets**
- 105. JSP**
- 106. Introduction to User interface**
- 107. Introduction to JSP**
- 108. Servlets vs. JSP**
- 109. Life Cycle of JSP**
- 110. JSP Implicit Objects**
- 111. JSP Directives**
- 112. JSP Scripting Elements**
- 113. MVC Architecture Introduction**
- 114. Forms Development**
- 115. Mini Projects Development**

Module-2:Web Development

HTML

1. Web Development Overview
2. HTML Introduction
3. HTML Document Structure
4. Headings
5. Paragraphs
6. Typography
7. HTML Links
8. Images in HTML
9. Attributes
10. Lists
11. HTML Tables
12. Forms & Inputs
13. Block & Inline elements
14. Divs
15. Spans
16. Classes & Ids
17. Iframes

18. HTML 5 Semantics

CSS

19. CSS Introduction

20. Basic CSS Selectors

21. Dev Tools Introduction

22. Fonts

23. Colors

24. Backgrounds

25. Borders

26. Box Model

27. Margin & Padding

28. Display, Alignment & Positioning

29. Pseudo Selectors

30. Responsive Layouts

31. Introduction to FlexBox

32. Building Responsive Website

BOOTSTRAP

33. Bootstrap Introduction

34. Typography & Utility Classes

- 35. Buttons & Button Groups
- 36. NavBars & Navs
- 37. List Groups
- 38. Forms & Inputs
- 39. Input Groups
- 40. Tables
- 41. Pagination
- 42. Alerts
- 43. Spinners
- 44. Cards
- 45. Carousel Slider
- 46. Collapse
- 47. Accordion
- 48. Tooltips
- 49. Popovers
- 50. Models

JAVA SCRIPT

- 51. Introduction to Java Script
- 52. Script Tags
- 53. Console Output

- 54. Variables
- 55. Data Types
- 56. Strings & Strings Methods
- 57. Arrays
- 58. Java Script Objects
- 59. JSON
- 60. Arrays
- 61. Loops
- 62. Array Helpers
- 63. Conditionals
- 64. Functions
- 65. Constructor Functions
- 66. ES6 Classes
- 67. Window Object & DOM
- 68. DOM Selection
- 69. DOM Manipulation
- 70. Events
- 71. Handling Forms

Front End Projects Development

- 72. Building App with HTML & CSS

73. Building App with HTML, CSS & Bootstrap

74. Building App with HTML, CSS, Bootstrap & Java Script

75. Resume Preparation for Frontend Development

76. Roles & Responsibilities of Frontend Developer

77. Front end Interview Questions & Answers

78. Interview Tips & Tricks



SPRING BOOT & MICRO SERVICES COURSE CONTENT

SPRING BOOT

- 1) What is Spring Framework
- 2) What is Spring Boot
- 3) Differences between Spring & Spring Boot
- 4) Spring Boot Overview
- 5) Pros & Cons of Spring Boot
- 6) Approaches to create Spring Boot Application
 - a) Spring_INITIALIZER (start.spring.io)
 - b) Spring Starter Wizard in STS IDE
- 7) Introduction to Spring Boot Starters
 - a) Spring Boot Parent Starter
 - b) Spring-boot-starter
 - c) Spring-boot-starter-web
 - d) Spring-boot-starter-webflux
 - e) Spring-boot-starter-data-jpa
 - f) Spring-boot-devtools

- g) Spring-boot-starter-mail
- h) Spring-boot-actuator
- i) Spring-boot-starter-test etc.
- 8) What is Start Class in Spring Boot
- 9) @SpringBootApplication annotation internals
- 10) SpringApplication.run(..) method internals
- 11) Spring Boot Application Boot strapping
- 12) AutoConfiguration in Spring Boot
- 13) IOC container
- 14) Dependency Injection
 - a) Setter Injection
 - b) Constructor Injection
 - c) Field Injection
- 15) Stereotype Annotations
 - a) @Component
 - b) @Service
 - c) @Repository
 - d) @Controller
- 16) Base Package Naming convention
- 17) Component Scanning
- 18) Auto wiring

- a) byType
- b) byname
- c) constructor
- d) none

19) @Qualifier annotation

20) @Primary annotation

21) Introduction to @Configuration annotation

22) Details of @Bean annotation

23) Bean Life Cycle

24) Bean Scopes

25) Banner in Spring Boot

26) Standalone application development in Spring Boot

27) Standalone application with layered architecture

28) Runner in Spring Boot

- a) Application Runner
- b) Command Line Runner

SPRING DATA JPA

- 1) What is Persistence Layer
- 2) Best practises to follow in persistence layer
- 3) ORM Basics
- 4) Spring Data JPA Introduction
- 5) **Differences between Spring ORM and Spring Data**
- 6) CurdRepository introduction
- 7) CurdRepository methods for DB operations
 - a) save() method
 - b) saveAll() method
 - c) findById() method
 - d) findAllById() method
 - e) findAll() method
 - f) deleteById() method
 - g) deleteAllById() method
 - h) delete() method
 - i) count()
 - j) existsById()
- 8) Custom findByXXX method syntax
- 9) Custom Queries Execution in Data JPA
- 10) JpaRepository introduction
- 11) JpaRepository methods for DB operations
- 12) Pagination Using Data JPA methods

- 13)** Sorting Using Data JPA Methods
- 14)** Query By Example Executor
- 15)** Generators
- 16)** Custom Generators in Spring Data
- 17)** Embedded Database Introduction
- 18)** Application Development using Embedded Database (H2)
- 19)** Application Development Using MYSQL Database
- 20)** Profiles in Spring Boot
- SPRING WEB MVC**
- 21)** Spring Web MVC Introduction
- 22)** Spring Web MVC Advantages
- 23)** Spring MVC Architecture
- 24)** Introduction to Front Controller
- 25)** Controllers
- 26)** Handler Mappers
- 27)** View Resolvers
- 28)** Web Application development using Spring Boot
- 29)** Embedded HTTP Servers Introduction
 - a)** Embedded Tomcat Server

- b) Embedded Jetty Server**
- 30) Making Jetty as Default server**
- 31) Web Application Deployment in External Server**
- 32) Sending Data From UI to Controller**
 - a) Query Param**
 - b) Path Param**
- 33) Sending Data From Controller to UI**
 - a) Model**
 - b) ModelAndView**
- 34) @RequestBody annotation**
- 35) @ResponseBody annotation**
- 36) Form Based application development using Spring Boot**
- 37) Thymeleaf Introduction**
- 38) Web Application with Thymeleaf**
- 39) Sending Email using Spring Boot**
- 40) Exception Handling in Spring Boot Web Application**
- 41) Spring Boot Actuators**
 - a) Health**
 - b) Info**

- c) Heapdump
- d) Theaddump
- e) Beans
- f) Httptrace
- g) Mappings
- h) Shutdown etc SPRING REST
- 42) Distributed Applications
- 43) Distributed Technologies
- 44) SOAP vs REST
- 45) RESTful Services Introduction
- 46) REST principles
- 47) One Time operations
- 48) Run Time Operations
 - a) Marshalling
 - b) Un Marshalling
- 49) JAX-B Introduction
- 50) JAX-B Architecture
- 51) Applications development with JAX-B
- 52) JSON Introduction
- 53) XML vs JSON
- 54) JACKSON API
- 55) Converting Java object to JSON and vice

versa using Jackson API

56) GSON API

57) Converting Java Object to JSON and Vice Versa using GSON API

58) HTTP Protocol Details

59) HTTP Methods

a) GET

b) POST

c) PUT

d) DELETE

60) HTTP Status Codes

61) @RestController

62) @RequestBody

63) @ResponseBody

64) @RequestParam

65) @PathVariable

66) MediaType

67) Consumes

68) Produces

69) Accept Header

70) Content-Type header

71) REST API Development using Spring Boot

- 72) POSTMAN
- 73) SWAGGER & SWAGGER UI
- 74) Exception Handling in REST API
- 75) REST Security
 - a) HTTP Basic Auth
 - b) JWT
 - c) OAuth2.0
- 76) Mono Objects
- 77) Flux Objects
- 78) REST Client Introduction
- 79) RestTemplate
- 80) WebClient
- 81) RestTemplate vs WebClient
- 82) Reactive Programming
- 83) Synchronous vs Asynchronous Calls
- 84) Apache Kafka with Spring Boot
- 85) Redis Cache Integration with Spring Boot
- MICRO SERVICES
- 86) Monolith Architecture Introduction
- 87) Monolith Architecture case study
- 88) Monolith Application Deployment Process
- 89) Load balancer (Cluster) case study

- 90) Load Balancing Algorithms**
 - a) Round Robin**
 - b) IP Hashing**
 - c) Sticky Session**
- 91) Monolith Architecture Drawbacks**
- 92) Micro services Introduction**
- 93) Micro Services Advantages**
- 94) Micro Services Dis-Advantages**
- 95) Micro Services case study**
- 96) Identifying Micro services boundaries**
- 97) Micro services Architecture**
- 98) Micro services Development**
 - a) API – 1**
 - b) API – 2**
- 99) Interservice communication case Study (FeignClient)**
- 100) Cloud Introduction**
- 101) AWS Account Creation**
- 102) AWS Services Overview**
- 103) Deploying Micro services to AWS**
- 104) Service Registry case study (Netflix Eureka)**
- 105) API Gateway**

- 106)** Hystrix (Circuit Breaker)
- 107)** Spring Boot Admin Server
- 108)** Spring Boot Admin Client
- 109)** Distributed Logging a) Sleuth Logging b) Zipkin Server
- 110)** Ribbon case study (Micro services load balancer)
- 111)** Implementing Ribbon in Micro services
- 112)** ConfigServer Introduction & Implementation
- 113)** Micro services Integration with Angular TOOLS
- 114)** Maven
- 115)** Log4J
- 116)** Junit 5
- 117)** Jenkins Deployment
- 118)** Docker
- 119)** POSTMAN
- 120)** Swagger

JAVA REAL-TIME PROJECT COURSE CONTENT

INTRODUCTION

- 1) Introduction to Real-time Project
- 2) Types of Software companies
 - a) Product Based Companies
 - b) Service Based Companies
 - c) Outsourcing Companies
- 3) Interview process in software companies
- 4) Types of software jobs
 - a) Permanent Job
 - b) Contract Job
- 5) Types of software projects
 - a) Scratch Development Projects
 - b) Maintenance Projects
 - c) Migration Projects
- 6) Types of teams in software project
 - a) On-shore Team
 - b) Off-shore Team
- 7) How to collaborate with team members

8) Discussion related to Bridge calls & Official emails

9) Role Chart Details REALTIME – TOOLS

10) Maven

11) Gradle

12) Debugging

13) Project Lombok

14) GIT

5) BitBucket

16) Log4J

17) SLF4J

18) Putty & WinScp

19) Splunk 20) JUNIT

21) Mocking

22) JaCoCoo

23) SonarQube

24) JIRA

25) Jenkins

26) Dockers

27) Kubernetes

28) JMETER

29) Apache Kafka

30) Redis Cache

31) POSTMAN

MINI PROJECTS DEVELOPMENT **32)** SDLC (Agile)

I. Story II. Story Points III. Backlog grooming IV. Sprint Planning V. Sprint VI. Sprint Duration VII. Scrum VIII. Mid-iteration review IX.

Retrospective

33) Real-time Environment Terminology

34) Requirements Gathering

35) Minutes of meeting

36) Query Log

37) DB Design

38) DB Template **39)** Real-time Coding Standards

40) 01-Mini Project (Only Coding)

41) 02- Mini Project

42) 03- Mini Project

43) Mini Projects Case study MICROSERVICES

44) Monolith Vs Microservices

45) Microservices Advantages

46) Microservices Architecture

47) Service Registry (Eureka) **48)** API Gateway

(Cloud Gateway)

49) Gateway Routing

50) Gateway Filters

51) FeginClient

52) Microservices Case Study MAJOR PROJECT DEVELOPMENT

53) Major Project Introduction

54) Major Project Modules

55) Major Project Architecture

56) Major Project Functional Flow

57) Database Design

58) Story Creation in JIRA

59) Story Development

60) Logging in Project

61) Swagger Configuration

62) Actuators Configuration

63) Exception Handling

64) Multi-Threading use case in Project

65) Rest Calls in Project

66) Batch Processing

67) Unit Testing

68) Integration Testing

- 69) Code Review
- 70) Project Deployment AWS (Cloud)
- 71) What is Cloud Computing
- 72) AWS Introduction
- 73) AWS Advantages
- 74) AWS Account Creation
- 75) AWS Services Walk through
- 76) Launching EC2 Machine (Linux)
- 77) Connecting to EC2 using Putty
- 78) Linux Commands
- 79) S3 Buckets
- 80) RDS (Relation Database System)
- 81) Deploying Spring boot app in AWS
- 82) Load Balancing
- 83) Auto Scaling
- 84) IAM User ANGULAR FRAMEWORK
- 85) Angular Introduction
- 86) Angular JS vs Angular
- 87) Angular Version History
- 88) Angular Environment Setup
- 89) Angular Architecture
- 90) Angular App Development

- 91) Components**
- 92) Templates**
- 93) Directives & Pipes**
- 94) Services**
- 95) Forms Development**
- 96) Form Validations**
- 97) Routing**
- 98) Http Client Module**
- 99) Integration (Front End + Back End)**
- 100) Spring Boot with Angular Integration**
- 101) Angular App Deployment**
- 102) Heroku Deployment INTERVIEW GUIDE**
- 103) Resume Preparation**
- 104) Profile Creation in job portals**
- 105) Email Writing**
- 106) HR Discussion details**
- 107) Joining Formalities**
- 108) First day and last day in office**
- 109) Daily Activities in Job**
- 110) Interview Tips & Tricks**