

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 (Only Coding)
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) CrudRepository introduction
- 7) CrudRepository 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 COURSES 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 (Only Coding)

13) Project Lombok

14) GIT

15) 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
- 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