

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

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- 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. Modals

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) CommandLine 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) Theadddump

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) MediaTypees

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

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- 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
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JAVA REAL-TIME PROJECT COURSE CONTENT

INTRODUCTION

- 1) Introduction to Real-time Project Types
- 2) of Software companies a) Product Based Companies b) Service Based Companies c) Outsourcing Companies Interview process in software companies
- 3) Types of software jobs
- 4) 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
- 15) BitBucket
- 16) Log4J
- 17) SLF4J
- 18) Putty & WinScp
- 19) Splunk
- 20) JUNIT
- 21) Mocking
- 22) JaCoCo
- 23) SonarQube
- 24) JIRA
- 25) Jenkins
- 26) Dockers
- 27) Kubernetes
- 28) JMETER
- 29) Apache Kafka
- 30) Redis Cache
- 31) POSTMAN



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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