

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
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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
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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

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- 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) Threaddump
 - e) Beans

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- 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

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**
- 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
