

Java Full Stack

Server Side: Spring BOOT + Restful Web Services + Spring Data using Hibernate + MongoDB

Client Side: Angular 11 + Bootstrap 4

Overview:

This course is targeted for candidates who are working either at server side or client side and want to make a leap in the respective fields. Become a boss of end to end application development and get a tremendous increment!

(Pre-requisites: Core Java, Basic knowledge of simple html)

Spring 5.0

A) Spring Core:

- a) How Spring Framework is evolved?
- b) Different Spring modules.
- c) Dependency Injection (DI), Inversion of Control (IoC)
- d) Spring Containers: BeanFactory, ApplicationContext
- e) Different types of configurations: XML based, annotation based and Java based configuration.
- f) Hands on

B) Spring AOP:

- a) Need of AOP
- b) Aspect, Joinpoint, Advice, Pointcut, Target Object, Weaving
- c) Different types of advice:
 - i) Before advice
 - ii) After returning advice
 - iii) After throwing advice
 - iv) After advice
 - v) Around advice
- d) Hands on

- C) Spring MVC:
 - a) MVC architecture in Spring
 - b) Front Controller: DispatcherServlet
 - c) Handler mapping, View Resolver
 - d) Hands on

Spring BOOT + Restful Web Services

1. What and why Spring Boot
2. Traditional problems with web-based Spring Projects
3. What are Web Services
4. REST vs SOAP
5. Why REST
6. Understanding JAX/RS implementation
7. Creating a representation class
8. Create a resource controller
9. Request Headers
10. Response Builders
11. JSON vs XML Parsers
12. Using @RestController to build a simple REST Application
13. Implementing HTTP Verbs (get, put, post, delete)
14. Implementing helper classes to interact with My Sql Database
15. Understanding and configuring CORS
16. Using Postman to access API's
17. Security basics in REST
18. Reading basic authentication header from client
19. Building a 'login' system based on security guidelines
20. Creating a secure, robust RESTful API:
 - *Every individual will create a RESTful API*

Hibernate

1. Understanding basics of an ORM
2. Hibernate architecture
3. Mapping a Model Entity class
4. Writing simple implementations for CRUD operations
5. Inheritance Mapping
 - a. Table per hierarchy

- b. Table per concrete
- c. Table per subclass
- 6. Collection Mapping
 - a. List Mapping (1 to 1 and 1 to many)
 - b. Set Mapping (1 to 1 and 1 to many)
 - c. Map Mapping (1 to 1 and 1 to many)
 - d. Association Mapping (1 to 1 and 1 to many)
- 7. Transaction Management
- 8. HQL (Hibernate Query Language)
- 9. HCQL (Hibernate Criteria Query Language)
- 10. Overview of Hibernate Caching

Spring Data

- 1. Spring data JPA
- 2. Create spring data jpa repository
- 3. Creating Custom JPA repository
- 4. Spring data JPA specifications
- 5. Spring data JPA criteria query
- 6. Spring data jpa native query

Mongo DB

- 1. Introduction to the NO-SQL Databases
- 2. Data Modeling
- 3. Create & Drop Database
- 4. Create & Drop Collection
- 5. Data Types
- 6. Insert Document
- 7. Query Document
- 8. Update Document
- 9. Delete Document
- 10. Projection
- 11. Limiting Records
- 12. Sorting Records
- 13. MongoDB – Indexing
- 14. Object Id
- 15. Map Reduce

Angular 11

We will be using Bootstrap for styling CSS, and typescript for building logic in Angular

1. Angular and Single Page Application architecture
2. Building with Components
 - a. A Trivial Component
 - b. Nested Components
3. Angular 11 Binding and Events
 - a. Two-way Binding
 - b. Class and Style Bindings
 - c. Built-in Directives
 - d. Component Events
 - e. Ng-model
4. Forms
 - a. Controls
 - b. Template Driven Approach
5. Pipes
 - a. Using Built-in Pipes
 - b. Creating Pipes
 - c. Chaining Pipes
6. Dependency Injection
 - a. Why Dependency Injection?
 - b. Injection API
 - c. Providers
7. Services
 - a. Services Overview
 - b. Creating a Service
 - c. Injecting a Service
8. HTTP, Promises, and Observables
 - a. Promises - still available, still useful
 - b. Calling an API via HTTP
 - c. Introduction to Observables
 - d. Observable Bindings and Operators
9. Routing
 - a. Introduction and Use
 - b. Creating and configuring Routes

c. Routing Parameters

10.Directives

- a. Introduction and Examples
- b. Built In Directives
- c. Custom Directives

11.Angular 11 Security

- a. Introduction to JSON Web Tokens
- b. JWT In Practice – Step by Step Authentication with JSON Web Tokens
- c. CSRF – Cross Site Request Forgery
- d. JWT-based Authentication with Auth0
- e. RBAC Role-Based Authorization
- f. Conclusion

Bootstrap

- 1. What Is Bootstrap?
- 2. Default Grid System
- 3. Fluid Grid System
- 4. Bootstrap CSS
- 5. Typography
- 6. Tables
- 7. Forms
- 8. Buttons
- 9. Images
- 10. Icons

Project Hands On: All candidates will be able to integrate **Spring Rest Services** with **MongoDB** in order to persist data using **Spring Data**; and call the server stack using **Angular** which will be styled in **Bootstrap**.