

Advanced Java Syllabus

1. Basics of a Web application

- What is a web application?
- What is a web client and web server?
- How do client and server communicate?
- HTTP protocol basics
- HTML language basics
- What is a TCP/IP port, URL?
- Need for a Web Container

2. Web Container and Web Application Project Set up

- To set up Tomcat Container on a machine
- To set up a Servlets JSP project in Eclipse
- To configure dependency of Servlet JSP APIs
- Web application project structure

3. Servlets

- What are Servlets?
- What can they do? Why are they needed?
- How do Servlets look in code?
- HTTP Methods; GET, POST, PUT, DELETE, TRACE, OPTIONS
- GET/POST request; differences between the two
- Servlet Lifecycle
- Servlet Context and Servlet Config
- Forwarding and Redirection of requests

4. Session Management

- What is a session?
- Why is it required?
- How to get a session?
- Session information passing between client and server
- Session information passing mechanisms - Cookies, Rewriting
- How to destroy a session

5. JSPs

- Introduction to JSP and need for JSPs
- Basic HTML tags
- JSP Lifecycle

6. JSP Elements

- Scriptlets
- Expressions
- Declarations
- Significance of above elements and fitment into the JSP Lifecycle
- What are Directives in JSP?
- Page Directive
- Include Directives
- Taglib Directive

7. JSP Tag library

- JSP Standard Actions
- Expression Language
- JSTL basics and its usage
- Need for Custom Tag Library
- Custom Tag Library implementation

Spring Boot Framework (Version 2.x)

1. Introduction

- Spring Boot Introduction
- Spring Boot Version
- Spring vs Spring Boot vs Spring MVC
- Spring Boot Architecture

2. Creating Project

- Spring Initializr
- Download & Install STS IDE
- Spring Boot Example
- Spring Boot CLI
- Spring Boot Example-STs

3. Project Components

- Annotations
- Dependency Management
- Application Properties
- Starters
- Starter Parent
- Starter Web
- Starter Data JPA
- Starter Actuator
- Starter Test
- Devtools
- Multi Module Project
- Packaging
- Auto-Configuration

4. Tool Suite

- Hello World Example
- Project Deployment Using Tomcat

5. Spring Boot AOP

- What is AOP?
- AOP Before Advice
- AOP After Advice
- AOP Around Advice
- After Returning Advice
- After Throwing Advice

6. Spring Boot Database

- JPA
- JDBC
- H2 Database
- Crud Operations