Spring MVC Course

Course Duration: 40 Hours **Course Code: SPMVC-101**

1. Course Overview

SPMVC-101 is a hands-on course that teaches you how to design and build robust, testable, and maintainable web applications using **Spring MVC**. You'll learn the MVC request lifecycle, controller design, form handling and validation, view technologies (JSP/Thymeleaf), REST API development, data access with Spring JDBC/Hibernate/JPA, and production-ready concerns like security, error handling, and deployment.

2. What You'll Learn

- Set up a modern **Spring MVC** project (Maven/Gradle) and directory structure
- Explain the **DispatcherServlet** flow, handlers, handler mappings, and view resolution
- Build controllers with **@Controller / @RestController** and request mapping annotations
- Bind and validate form data with **JSR-303/380** and custom validators
- Create views with **JSP/JSTL** and **Thymeleaf** using the model effectively
- Design and implement **RESTful endpoints**, content negotiation, and exception responses

- Persist data using **Spring JDBC**, **Hibernate/JPA**, transactions, and repositories
- Secure apps with **Spring Security** (authn/authz, CSRF, method security)
- Implement cross-cutting concerns: centralized **error handling**, logging, and interceptors
- Package and **deploy** applications; apply performance and best practices

3. Target Audience

- Java developers moving into **Spring web development**
- Backend engineers building **RESTful services** with Spring
- Team leads/architects standardizing on **Spring MVC** in enterprise apps

4. Pre-Requisites

- Solid **Java SE** knowledge (OOP, collections, exceptions, generics)
- Basic **HTTP/HTML/CSS** familiarity
- Comfort with an IDE (IntelliJ/Eclipse) and **Git**
- Helpful but optional: SQL and relational database basics

5. Course Content

Module 1: Spring MVC Foundations

- Spring ecosystem overview, MVC architecture, project setup (Boot initializer)

Module 2: Request Lifecycle & Dispatcher Servlet

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- Handler mappings, adapters, view resolvers, message converters

Module 3: Controllers & Routing

- @Controller, @RestController, @RequestMapping variants, path variables, params, headers

Module 4: Models, Views & Templates

- Model/Model Map, JSP/JSTL, **Thyme leaf** configuration, fragments, layouts

Module 5: Forms, Data Binding & Validation

- Command objects, @ModelAttribute, JSR-303/380 annotations, custom validators, binding results

Module 6: Exception Handling & Interceptors

- @ExceptionHandler, @ControllerAdvice, error pages, Handler Interceptor

Module 7: RESTful Services with Spring MVC

- @RestController design, JSON/XML with HttpMessageConverters, HATEOAS basics, pagination

Module 8: Data Access & Transactions

- Spring JDBC template, **Hibernate/JPA** integration, repositories, @Transactional

Module 9: Security with Spring Security

- Authentication, authorization, security filters, CSRF, method security, securing REST

Module 10: File Uploads, i18n & Static Resources

- Multipart resolver, resource handling, internationalization/localization

Module 11: Testing Spring MVC

- Unit testing controllers (MockMvc), slice tests, data layer tests

Module 12: Packaging, Deployment & Best Practices

- Fat JAR/WAR options, container vs. server deployment, performance tips, observability hooks

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