

2022



## Spring: Core Training

## Course Content:

Module	Title	Content
<b>Module-1</b>	Introduction to Modern App Development	<ul style="list-style-type: none"> <li>• Importance of App Modernization</li> <li>• Platforms Used for Development</li> <li>• Essentials for App Modernization</li> <li>• Important Modernization Technologies</li> </ul>
<b>Module-2</b>	Spring: Core	<ul style="list-style-type: none"> <li>• What is the Spring Framework?</li> <li>• The DI Container</li> <li>• The Spring Framework History and Ecosystem</li> <li>• Java configuration and the Spring application context</li> <li>• @Configuration and @Bean annotations</li> <li>• @Import: working with multiple configuration files</li> <li>• Defining bean scopes</li> </ul>
<b>Module-3</b>	Annotation and Component Scanning	<ul style="list-style-type: none"> <li>• Component scanning</li> <li>• Autowiring using @Autowired</li> <li>• Java configuration versus annotations, mixing.</li> <li>• Lifecycle annotations: @PostConstruct and @PreDestroy</li> <li>• Stereotypes and meta-annotations</li> </ul>
<b>Module-4</b>	Inside the Spring Container and JDBC Simplification with JdbcTemplate	<ul style="list-style-type: none"> <li>• The Spring Bean Lifecycle</li> <li>• The BeanFactoryPostProcessor interception point</li> <li>• The BeanPostprocessor interception point</li> <li>• Spring Bean Proxies</li> <li>• @Bean method return types</li> <li>• How Spring integrates with existing data access technologies</li> <li>• Spring's JdbcTemplate</li> <li>• DataAccessException hierarchy</li> </ul>
<b>Module-5</b>	Introduction to Spring Boot	<ul style="list-style-type: none"> <li>• Dependency management using Spring Boot starters</li> <li>• How auto-configuration works</li> <li>• Configuration properties</li> <li>• Overriding auto-configuration</li> <li>• Creating a simple Boot application using Spring Initializer website</li> <li>• Quick introduction to ORM with JPA</li> <li>• Benefits of using Spring with JPA</li> <li>• JPA configuration in Spring</li> <li>• Configuring Spring JPA using Spring Boot</li> <li>• Spring Data JPA dynamic repositories</li> </ul>
<b>Module-6</b>	Web Applications with Spring Boot	<ul style="list-style-type: none"> <li>• Introduction to Spring MVC and request processing</li> <li>• Controller method signatures</li> <li>• Using @Controller, @RestController and @GetMapping annotations</li> <li>• Configuring Spring MVC with Spring Boot</li> <li>• Spring Boot packaging options, JAR or WAR</li> </ul>

<b>Module-7</b>	RESful Application with Spring Boot	<ul style="list-style-type: none"> <li>• An introduction to the REST architectural style</li> <li>• Controlling HTTP response codes with @ResponseStatus</li> <li>• Implementing REST with Spring MVC, @RequestMapping, @RequestBody and @ResponseBody</li> <li>• Spring MVC's HttpMessageConverters and automatic content negotiation</li> </ul>
<b>Module-8</b>	Securing REST Application with Spring Security	<ul style="list-style-type: none"> <li>• What problems does Spring Security solve?</li> <li>• Configuring authentication</li> <li>• Implementing authorization by intercepting URLs</li> <li>• Authorization at the Java method level</li> <li>• Understanding the Spring Security filter chain</li> <li>• Spring security testing</li> </ul>
<b>Module-9</b>	Intro and Basics of Containerization	<ul style="list-style-type: none"> <li>• What is a Container?</li> <li>• Containerization vs. Virtual Machine</li> <li>• Docker Installation</li> <li>• Main Docker Commands</li> <li>• Building your own Containerized Image</li> <li>• Uploading image to docker hub</li> <li>• Deploy our containerized app in Heruko</li> </ul>
<b>Module-10</b>	Introduction to Kubernetes	<ul style="list-style-type: none"> <li>• Understand the main Kubernetes Components</li> <li>• Kubernetes Architecture</li> <li>• Create Kubernetes Cluster in IBM Cloud</li> <li>• Learn Kubernetes YAML Configuration File</li> <li>• Learn to deploy with application with configuration file</li> <li>• Deploy an Application Scale, Update and Rollback</li> <li>• Analyze Logs and Monitor app health</li> </ul>