

Opp. Satyam Theatre, Durga Bhavani Plaza, Ameerpet, Hyd-16

SPRING 5.X

Spring Introduction

- Differences between programming language, software technology and framework
- Introduction to Spring Framework
- Evolution of spring Framework
- Modules of Spring in Spring 1.x,2.x,3.x,4.x and 5.x
- MVC Architecture
- Role of spring framework in MVC Architecture application development
- Definition of spring framework
- POJO Class, POJI, JavaBean, Component Class ,spring bean classes

Spring Core Module

- Introduction to IOC
- Introduction to Spring Container/IOC Container
- Types of Dependency Injections
 - Setter injection
 - Constructor injection
 - Aware injection
 - Method injection
 - Lookup method injection
- Introduction to Design patterns
- Factory DesignPattern
- Strategy Design pattern
- Layered Application demonstrating real time dependency injection
- Resolving/identifying params in constructor injection
- Bean Inheritance
- Collection Merging
- Null injections
- Bean alias
- Default bean ids
- Performing dependency lookup by using IOC container
- <Idref>tag
- Understanding Factory Methods
- Factory Method Bean Instantiation
 - Static factory method bean Instantiation
 - instance factory method bean Instantiation
- Singleton java class and its usecases
- **Bean Scopes**
 - Singleton
 - Prototype
 - Request
 - Session
 - Application
 - Websocket
- **Bean Wiring**
 - Explicit wiring
 - Implicit wiring or auto wiring
 - ByType

- ByName
- Constructor
- Autodetect

• p-namespace,C-namespace

• ApplicationContext Container

- Preinstantiation of singleton scope beans
- Working with properties file
- I18n (Internationalization)
- Event Handling
- BeanFactory Vs ApplicationContext
- Automatic registration of bean post processor and bean factory post processor

• Bean Life Cycle

- Declarative approach
- Programmatic approach
- Annotation driven approach

• Nested IOC Containers

- Presentation tier
- Business tier
- Various attributes of <ref> tag

- FactoryBean
- ServiceLocator as factory bean
- FactoryMethod bean Instantation based service locator

- Method Replacement/Method Injection
- Aware Injection
- Lookup method injection
- BeanPostProcessor
- BeanFactoryPostProcessors
- PropertyEditors
- Custom property editors
- Spring Expression Language(SpEL)

Spring Core Module with Annotations

- Spring stereo type annotations
 - @Component,@Service,@controller,@Repository and etc...
 - @Autowired,@Qualifier,@Lazy,@Value,@ConfigurationProperties and etc...
- Working with Java config annotations
 - @Named,@Inject,@Resource and etc...
- Working with properties file in annotations environment
- Developing Layered applications in annotations environment

Spring Core Module with 100% Code/Java Config Approach.

- Working with @Bean, @Configuration,@Lazy,@PropertySource and etc...
- Developing Layered application
- Working with AnnotationConfigApplicationContext

Spring Boot Core

- Introduction to Spring Boot
- Spring Boot primary goals
- Spring boot features
- Spring Boot Starters
- Understanding @SpringBootApplication
- Auto configuration
- Example Applications
- Spring Profiles
- application.properties Vs application.yml
- Spring Boot Standalone app flow
- Working with sts plugins in eclipse to develop spring boot application

Spring JDBC/DAO

- Introduction
- Plain JDBC limitations
- Spring JDBC/DAO Advantages
- Working with different Data Sources
- JdbcTemplate
- JNDI Registry and ServerManaged Jdbc connection pool
- Callback Interfaces
- Batch processing/Updating
- NamedParameterJdbcTemplate
- Working with SimpleJdbcInsert, SimpleJdbcCall
- SimpleJdbcCall to call PL/SQL procedures
- Mapping SQL operations as Sub Classes
- Spring JDBC/DAO with Annotations
- Spring JDBC/DAO with 100% Code Approach
- Spring Boot JDBC/DAO
- Spring Boot DAO-JdbcTemplate
- Spring Boot DAO-Simple Jdbc Insert
- Spring Boot Application Flow
- Working with DataSources through AutoConfiguration in Spring Boot 1.x and 2.x

Spring AOP Module

- Introduction
- Need of AOP
- Proxy design patterns
- AOP Terminologies/Principles
 - Aspect, Advice, Joinpoint, Pointcut
 - Target Class, Proxy Class, Weaving
- Types of Advices
 - Before Advice, After Advice, Around Advice
 - Throws Advice
- Types of Pointcuts
 - Static pointcuts, Dynamic pointcuts
- Programmatic Spring AOP
- Declarative Spring AOP
- @AspectJ Style AOP support
- Spring AOP/AspectJ AOP with Annotations
- Spring AOP/AspectJ AOP with 100% Code Approach
- Spring AOP/AspectJ AOP with Spring Boot AOP

Spring Transaction Management

- Introduction to Transaction Management
- Local Transaction Vs Distributed Transaction
- 2pc Principle
- Transaction models
 - Flat Transaction Model
 - Nested Transaction Model
- Need of Spring Transaction Management
- Choosing Spring Transaction Manager
 - DataSourceTransactionManager
 - Hibernate TransactionManager
 - JTATransactionManager and etc...
- Different ways of implementing of Spring Transaction management
 - Programmatic approach
 - Declarative approach using Spring AOP/AspectJ AOP
 - Annotation Driven Approach using AspectJ AOP

- 100% code Driven approach using AspectJ AOP
- Spring Boot Driven approach using AspectJ AOP

- Transaction Attributes
- Transactions and integration testing
- Distributed TransactionManagement implementation using webLogic server,Atomikos API
- Configuring Transaction isolation Levels
 - Read uncommitted, Read Committed
 - Repeatable Read, Serializable
- Working with RollBackfor,noRollBackfor,Timeout and etc...in Transaction Management

Spring MVC

- Introduction To MVC
- Understanding MVC1,MVC2 Architectures
- Front Controller Design Pattern
- Intercepting Filter Vs Front Controller
- Different types of Servlet URL patterns
- Spring MVC Resources
- Spring MVC flow
 - Structural Flow
 - Strategy Flow(Code based Flow)
- DispatcherServlet
- Different Controller Classes
 - ParamaterizableViewController
 - UriFileNameViewController
 - AbstractController
 - AbstractComandController
 - SimpleFormController
 - MultiActionController
 - AbstractWizardFormController and etc...
- Developing Mini Project with CURD operation
- ContextLoaderListener
- Working with Two Containers
- HandlerMappings
 - BeanNameUrlHandlerMapping
 - SimpleUrlHandlerMapping
 - ControllerClassNameHandlerMapping
 - DefaultAnnotationHandlerMapping
 - RequestMappingHandlerMapping and etc...
- HandlerMappingChaining
- Form Validations
 - Enabling Server side Validations only when client side validation are not enabled
 - <form:errors>
- ViewResolvers
 - InternalResourceViewResolver
 - UriBasedViewResolver
 - ResourceBundleViewResolver
 - XmlViewResolver
 - TilesViewResolver
 - BeanNameViewResolver and etc...
- ViewResolverChaining
- Views
 - InternalResourceView
 - JstlView, TilesView, AbstractPdfView
 - AbstractXlsView and etc....
- Exception Handling in Spring MVC
- Tiles integration with Spring MVC
- MessageSources and I18N
 - Formatting Labels, Formatting Numbers
 - Formatting Dates,
 - Formatting Currency Symbols
 - Locale
- MVC namespace
- Handler interceptors/Adapters
 - Checking Browser Type
 - Checking Timeout period
 - Preventing double posting problem

- PDF Views and Excel Views
- File Uploading and Downloading
- Spring MVC with Annotations
 - Annotation driven Controllers
 - @RequestMapping, @Controller
 - @ModelAttribute, @SessionAttribute, @RequestParam
 - RequestToViewNameTranslator
 - MVC NameSpace
 - Annotation driven Form validation using Hibernate Validator API, JEE validator API
- Spring MVC with 100% Code Approach
 - Dynamic Registration of Servlet
 - WebApplicationInitializer
 - SpringServletContainerInitializer
 - @EnableWebMVC, @Import
 - AbstractAnnotationConfigDispatcherServletInitializer
- Spring Boot MVC
 - SpringServletInitializer
 - Working with embedded TomcatServer
 - Spring Boot MVC flow
 - Spring Boot dev tools
 - application.Properties, application.yml in Spring Boot
 - Developing Mini Project with CURD operation
 - Solving double posting problems in Spring Boot MVC using PostRedirectGetPattern
- Profiles in spring ,Spring boot

Spring Security

- Introduction
 - Authentication authorization
- Authentication Manager and authentication info provider
- Need of Spring Security
- DelegatingFilterProxy
- SecurityNameSpace
 - Form Login
 - Remember Me
 - Session Concurrency
 - Logout and etc...
- Working with Different Authentication Providers
 - Xml File, Properties File, DataBase, LDAP Server
- Security Examples
 - Using Xml Configuratuions
 - Using Annotation Configurations
 - 100% Code Driven Configurations
 - Spring Boot Configuration
- Using LDAP Server as Authentication Provider

Spring ORM

- Introduction to ORM
- Spring ORM Advantage
- Integrating with Hibernate
- Spring with hibernate using HibernateTemplate
- HiberanteTemplate and its methods
- HibernateDAOSupport
- HibernateCallback interfaces

Spring Data and Spring Data JPA, MongoDB

- Need of Spring Data
- Spring Data JPA
- Finder Methods of Finder API

- @Query methods,
- @Modifying
- Repositories
 - JpaRepository
 - CURDRepository
 - Paging and Sorting Repository and etc...
- Spring Data Custom Query
 - Automatic custom Query
 - Manual custom Query(@Query)
- Spring Data Jpa Exception Translator
- Difference b/w Hibernate and Spring Data JPA
- Interacting with Mongo DB
- JUnit Test Cases

Spring Batch

- Need of Batch Processing
- Need of Spring Batch
- Understanding Spring Batch Architecture
- Working with Batch NameSpace
- Working with different ItemReaders, ItemWriters and ItemProcessors
- SpringBatch batch
- JobRepository
- Converting Database Data to CSV File
- Converting CSV File data to XML File
- Converting XML file data to CSV File
- Converting CSV file data to MongoDB and vice-versa
- Spring Batch Application using Spring Boot
 - JobBuilderFactory
 - StepBuilderFactory
 - Step point TaskLet and etc....
- Working with scheduler

Spring Mail

- Understanding Java mail API
- Understanding SMTP, POP3, IMAP Protocols
- Understanding Mail server and Mail Clients
- Understanding Email Message Structure
- Spring Mail abstraction over Java Mail
- Spring Mail using Spring Boot

Spring Social

- Introduction
 - Need of Spring Social
 - Understanding PAAS and SAAS
 - Accessing face book data
 - Accessing twitter data
- Spring social Example

Spring with OAuth protocol

- Understanding OAuth2
- Understanding Roles in OAuth2
 - Resource owner
 - Client
 - Resource Server
 - Authorization Server
- Working with SSO(Single sign on)

=>Introduction to Spring MicroServices

=>How to Explain Project Architectures

- Servlet, Jsp Project Architecture
- Spring MVC Project Architecture
- Spring Boot with Micro service Project Architecture
- Adapting Agile Methodology