

J2EE CONTENT

JDBC

- ❖ JDBC basics
- ❖ Explanation of Drivers
- ❖ Through Type 1 Driver and Type 4 Driver
 - DataBase connection with Statement Object
 - ResultSet
 - ResultSetMetadata
 - DataBaseMetaData
 - Prepared Statement Object to DataBase connection
 - Stored Procedures and Callable Statement Object to DataBase connection
 - IN
 - OUT
 - IN OUT
 - Transaction Usage
- ❖ JDBC 2.0 features
 - ResultSetscrollability
 - ResultSet Updatability.
 - Batch Updates
 - Storing and reading Image/audio/video file from the database
- ❖ JDBC 3.0 features
 - Retrieval of auto generated keys.
 - ParameterMetaData.
 - SavePoint
- ❖ JDBC 4.0 features
 - ROWID data type
 - Auto loading of JDBC driver
 - SQLException enhancement.
- ❖ Interacting with Excel Sheet by using JDBC
- ❖ Interacting with Excel sheet by using POI API.
- ❖ Exploring different usages of Date and Timestamp data types

Servlets

- ❖ Installation of Tomcat server.
- ❖ Web application directory structure.
- ❖ Introduction to static and dynamic web applications.
- ❖ Different types of input to the servlet. (request, config and context)
- ❖ Servlets architecture and life cycle.
- ❖ RequestDispatcher and sendRedirect
- ❖ Session Management (Session tracking)
- ❖ Filters
- ❖ Listeners.
- ❖ Wrappers
- ❖ Headers
- ❖ Database interaction (Various ways).

JSP

- ❖ Need of JSP,
- ❖ Scripting elements(expressions, scriptlets, declarations) and directives.
- ❖ JSP architecture and life cycle
- ❖ JSP actions (forward, include, param, useBean, setProperty, getProperty)
- ❖ Expression Language (EL)
- ❖ JSTL
- ❖ Interacting with the database
- ❖ Web application design patterns (MVC, DAO, VO, BD, SL)
- ❖ Developing CRUD by using servlets, JSP and JDBC

FRAMEWORKS CONTENT

Spring

1. **Spring IOC**
 - ❖ Inversion Of Control (IOC)
 - ❖ Dependency Injection (DI), Setter Injection, Constructor Injection
 - ❖ Bean Scope, Bean Inheritance, Spring Bean life cycle
 - ❖ Spring Collections (List, Set, Map, and Properties)
 - ❖ Auto Wiring
 - ❖ Multiple Config files
 - ❖ Annotations
2. **Spring JDBC**
 - ❖ JdbcTemplate
 - ❖ JdbcDaoSupport
 - ❖ BatchUpdate
 - ❖ NamedParameters
3. **Spring ORM**
 - ❖ Spring with Hibernate
 - ❖ CRUD operation
4. **Spring MVC**
 - ❖ Handler Mapping
 - ❖ Controller
 - ❖ ViewResolver
 - ❖ Form Tag library
 - ❖ Validations
 - ❖ CRUD development
5. **Spring Boot**
 - ❖ Spring Initializer
 - ❖ REST Controller
 - ❖ Auto Configuration
 - ❖ Actuator
 - ❖ Developer Tools
 - ❖ DataJPA
 - ❖ RESTful Service with Spring Boot
 - ❖ CRUD development
6. **Spring Microservices**
 - ❖ Introduction to Microservices
 - ❖ Microservices Architecture
 - ❖ MicroServices components
 - ❖ MicroServices with Spring Cloud
 - ❖ SpringCloud Config Server
 - ❖ JPA Repository
 - ❖ Feign REST Client
 - ❖ Ribbon
 - ❖ Eureka Naming Server
 - ❖ Zuul API Gateway
 - ❖ Spring Cloud Sleuth
 - ❖ Zipkin
 - ❖ Spring Cloud Bus

Hibernate

- ❖ Differences between JDBC and Hibernate
- ❖ Downloading Hibernate and setting up for development.
- ❖ POJO class Development, Hibernate configuration file development, Hibernate mapping file development
- ❖ Object Relational mapping introduction
- ❖ simple operations
 - save(), persist(), update(), delete(), saveOrUpdate(), get(), load(),
- ❖ Lazy loading and Eager loading
- ❖ Criteria API
 - Different methods in Restrictions,
 - Every where clause achievement.
 - Different ways of Criterion usage.
 - Index Parameters, Orders, Pagination,
- ❖ Query API
 - Through HQL
 - Through Native SQL
 - Through Named SQL
 - where clause achievement.
 - Index Parameters, Orders, Pagination,
- ❖ Different types of Generators (native, increment, sequence, assigned)
- ❖ Annotation Mapping
 - For all basic operations (save(), persist(), update(), delete(), saveOrUpdate(), get(), load())
 - For Generators
 - For Named Queries
- ❖ Component mapping (XML and Annotation Mapping)
- ❖ Composite Primary Key (XML and Annotation Mapping)
- ❖ Polymorphic mappings (XML and Annotation Mapping)
- ❖ Collection Mappings (XML and Annotation Mappings)
- ❖ Using Maven tool for Hibernate development.
- ❖ Association mappings and with XML and Annotation mappings
 - One-to-one
 - One-to-many
 - Many-to-many
- ❖ Cache management
 - 1st level and 2nd level
- ❖ Multiple Configuration files connection
- ❖ Interacting with multiple Databases (Oracle and MySql)
- ❖ Programmatic Configuration
- ❖ Thread wise Session management. (getCurrentSession())
- ❖ Using Hibernate In Servlets/JSP application to develop CRUD
- ❖ Using Hibernate in Struts based application to develop CRUD
- ❖ Using Hibernate in Spring MVC based application to develop CRUD.