



What is JAVA Framework?

Framework is a collection of classes or lines of prewritten code to which you could add your own code to build an application. A nice framework makes your job as a coder quite easy depending on the program you want to develop. Java frameworks such as Spring and Hibernate will be covered in this learning module. What's more, Web Services will also be included in this course.

Why JAVA Framework?

Here are some of the advantages of using Java Frameworks:

- Improvement in the code quality as the frameworks are pre-tested classes
- Reduced effort for the developer
- Code maintenance effort is considerably reduced
- Program becomes reusable

Why should you learn Java Framework?

- Learning powerful and widely used frameworks in Java such as Spring and Hibernate will make you stand apart from the crowd.
- It is the natural learning stage for a developer once you are familiar with Java.
- A lot of industry-wide applications use these frameworks.

Course Syllabus:

1) Spring Basics

- What is Spring Framework
- Inversion of Control
- Dependency Injection
- Bean Factory
- Developing First Spring Application

2) Spring Container

- Built-in Bean Factories
- Application Context
- Wiring Beans
- Bean Lifecycle in Container
- Spring Events

3) Spring AOP

- Introduction to AOP
- Role of AOP in Spring
- AOP Advice
- AOP Pointcuts
- Spring AOP Introductions
- ProxyFactoryBean

4) Spring Data Access

- JDBC Abstraction Layer
- Data Access Exceptions
- DAO Support

5) Spring O~R /mapping

- What is O-R Mapping
- O-R Mapping support in Spring
- Hibernate Support / Mapping

6) Spring Transaction Management

- Transaction Abstraction in Spring
- Transaction Strategies
- Programmatic Transaction
- Declarative Transaction

7) Spring Remoting and Enterprise Services

- Introduction to Spring Remoting
- Java RMI in Spring
- Accessing JNDI
- Invoking EJB from Spring
- Web Service in Spring using JAX-RPC Support
- Messaging Support in Spring using JMS
- Sending Mail with Spring Mail
- Scheduling using Timer Support

8) Spring Web MVC Framework

- Web MVC Architecture
- Role of DispatcherServlet
- Controller
- Handler
- View Resolving
- Data Binding
- File Upload Support

8) Securing Spring Application

- Acegi Security System for Spring
- Authentication
- Access Control
- Web Application Security
- Method Invocation Security

Relational Persistence Using Hibernate

1) Introduction to Hibernate

- Drawbacks of direct JDBC
- Plain Old Java Object (POJO)
- What is O-R Mapping

- Simple Database Application

2) Hibernate Configuration

- Required JAR Files
- Hibernate configuration File
- Hibernate properties File
- Hibernate XML File
- SQL Dialects

3) Hibernate Concepts

- Id and Primary Key
- Id Generation Methods
- SessionFactory
- Session
- Transaction
- Developing CRUD Application

4) Hibernate O~R Mapping

- Mapping Declarations
- Modeling Composition with Relationship
- Modeling Composition with Components
- One-to-One Association
- One-to-Many Association
- Many-to-Many Association
- Uni and Bidirectional Associations
- Hibernate Value Types
- Custom Types

5) Manipulating and Querying

- Persistent Objects
- Object Loading
- Executing Queries
- Iterating Results

- Scalar Results
- Bind Parameters Pagination

6) Hibernate Query Language

- Select clause
- From clause
- Where clause
- Aggregate functions
- Expressions
- Sorting
- Grouping
- Sub queries

7) Criteria Queries

- Creating Criteria
- Narrowing the Result
- Ordering the Result

8) Native SQL

- Using SQL Query
- Named SQL Query
- Using Stored Procedure for Querying
- Creating Custom SQL for CRUD

9) Transaction and Concurrency

- Session and Transaction Scopes
- Database Transaction Demarcation
- Optimistic Concurrency Control
- Pessimistic Concurrency Control
- Connection Release Modes