

# Java With Spring Framework

## Training Outline





## Fundamentals of Java

- Introduction to Java
- Preparing development environment
- Hello World Application
- Data Types
- Variables
- Operators
- Operator Precedence
- Type Casting
- If statement
- if...else block construction
- Switch statement
- Using break
- While loop
- for loop
- do..while loop
- Using continue
- Array
- Iterating over array using enhanced for loop
- ArrayIndexOutOfBoundsException
- Multidimensional array

## Object Design and Programming

- Abstraction
- Inheritance
- Polymorphism
- Method Overriding
- Associations

## String Object and Regular Expressions

- Working with String
- Immutable String
- Comparison
- Concatenation
- StringBuilder Class
- StringBuffer Class
- StringTokenizer Class
- Java String Methods

## OOP in Java

- Classes & Objects
- OOP Principles
- Instantiation
- Encapsulation
- Specialization
- Instance Variables
- Class Variables
- Constructors
- Instance Methods
- Class Methods
- Method Overloading
- super keyword
- The this keyword
- Passing and returning objects
- Garbage Collection in Java

## Interfaces in Java

- Introduction to interface
- Implementing an Interface
- Interface Inheritance

## Java Exception Handling

- Why Exceptions
- Exception Class Hierarchy
- Checked vs. Unchecked Exceptions
- Catching an Exception: try and catch blocks
- Methods Which Throw Exceptions:
  - the throws clause
- Handling vs. Declaring Exceptions



## Java Collections API

- Arrays
- The Java Collections Framework (JCF)

### Collections Interfaces

- java.util.Collection
- java.util.List
- java.util.Map
- java.util.Set

### Concrete Collections

- java.util.ArrayList
- java.util.HashMap
- java.util.HashSet

### Iterating through Collections

- java.util.Iterator

## Java Date and Time API

- Java 8 Date/Time API
- java.util.Date class
- Formatting Date and Time
- Get Current Date and Time

## Design Pattern

- MVC Pattern
- DAO Pattern

## Threads in Java

- Introduction to Threads
- Multithreading in Java
- Multithreading and Concurrency

## Java-8

Programming with Lambda

Java-8 Date Time API

Functional Programming using Java-8

## Java Input/Output API

Streams & Files

Input & Output Streams

File Streams

Object Streams

Object Serialization

Readers & Writers

The Java New I/O (NIO) API

## Web Programming Using Servlets and JSP

- Introduction to client-server architecture
- Setting up java web project structure
- HttpServlet Fundamentals
- GET and POST form methods
- HTML response in HttpServlet
- Session Tracking
- Redirecting the Http request to a JSP page
- Database Access
- Model-View-Controller Architecture
- JSTL
- JSP expression language
- JDBC API With MVC
- Internationalization and Localization



## Spring Framework

- Introduction to Spring Framework
- Advantage of using Spring framework
- Inversion of Control
- Dependency Injection : Autowiring
- Spring Configurations(XML)
- Spring Annotations
- Model, View, Controller
- RequestParam, RequestMapping
- Methods : GET, POST, UPDATE, DELETE

## Spring REST

- Overview
- JSON Data Binding
- Rest Controller
- POJO integration JSON
- Spring REST Database Project
- Spring AOP
- Introduction, Scope
- Aspect, Join Point, Pointcut, Concern
- Advices: Before, After  
After Return, Around Advice  
Weaver, Weaving

## Hibernate

- Introduction: ORM
- Configuration, Session Factory, Session
- HQL:Entity
- Entity Class : Attributes
- Mapping with database table
- Spring MVC with Hibernate

## Maven

- Introduction to Maven
- Project Configuration
- Dependency management
- POM.xml

