ADVANCED JAVA—Duration: 10 days

Core Java: 2 Days

Introduction to Java
- Features of Java
- OOPs
- Data types and Operators
- Arrays
- Control Flow statements
  - If, Switch, For, While, and Do
  - Enhanced For Loop

Class Design
- Class and Objects
- Methods and Constructors

Polymorphism
- Method Overloading
- Constructor Overloading
- Use of this keyword

Encapsulation
- Packages and Access Specifiers

Inheritance
- Inheritance Basics
- Use of super keyword
- Overriding
- Runtime Polymorphism

Advanced Class Features
- Static variables, Static block and methods
- Static Import

Abstraction
- Abstract classes and methods
- Final classes and methods
- Interfaces

Exception Handling
- Exception and Errors
• Checked and UncheckedException
• Handling exceptions using try, catch and finally
• Java7 multi catch
• Use of throw and throws

java.util
• Generics
• Collections Framework
• List, Set
• Map
• Iterator, ListIterator and Enumeration

JDBC
• JDBC overview
• Types of drivers
• java.sql interfaces Driver, Connection, Statement
• Loading a driver and establishing a connection using DriverManager
• Perform CRUD operations using JDBC interfaces
• Prepared Statement for precompiled queries
• Mapping SQL and Java Types

Hibernate : 3 Days

Introduction to ORM framework
• JDBC Vs Hibernate
• Features of Hibernate

Hibernate Architecture Overview
• Configuration and Session Factory
• Session
• Transaction
• Environment Setup
• Getting started with Hibernate quickly

Database Connection and Schema Generation
• Mapping JavaBeans to tables
• Mapping properties to columns
• Building a Configuration Programmatically /Using .properties file /Using XML configuration file
• Creating a HBM document from the java bean class
• Creating a java bean class from a HBM document
Persisting objects using Hibernate

CRUD Examples
- Persisting data
- Loading data into an object
- get Vs load
- Deleting, updating & finding objects
- Using HQL to get all objects

Lifecycle
- Transient State
- Persistent state
- Detached state

Setting up all types of Mapping
- Mapping composite keys
- Mapping a java class
- Mapping Collections
- Mapping Association
- Component Mapping
- Inheritance Mapping
  - Table-per-class
  - Table-per-subclass
  - Table-per-concrete

Hibernate Annotations
- Using annotation for all kinds of mapping
- Use of @Entity, @Embedded and other annotations
- Mapping a simple class, Association, Inheritance

Hibernate Query Language
- Using Query interface for single/multi select statements
- Named and positional parameters
- Named and Native Queries
- Using SQL Queries
- Working with HQL Joins
- Using Criteria for select statements
- Pagination using HQL

Hibernate Cache Overview
- Introduction to the Caching
- First Level/Second Level/Query cache
- Cache Modes
- EHCache Configuration
Spring: 3 Days

Introduction
- Overview of Spring framework
- Dependency Injection (DI)
- What is Spring?

Spring Architecture
- Spring Container, IoC, DI
- Configuration Metadata - XML
- Dependency Injection (DI) in Spring, DI Configuration

Spring Core Container and Beans
- BeanFactory Interface and ApplicationContext
- ClassPathXmlApplicationContext, FileSystemXmlApplicationContext
- Spring Beans
- Loading Spring Configuration File

What are Setter Based and Constructor Based DI?

XML Based Configuration
- Setter Based and Constructor Based
- Factory Methods, Definition Inheritance (Parent Beans)
- Collection Valued Properties
  - Configuring and using Array, List, Map, Set and Properties
- Inner Bean
- Bean Scopes
- Autowiring of Dependencies using byName, byType, constructor
- Bean LifeCycle
- InitializingBean and DisposableBean
- Creating custom lifecycle methods

Annotation Driven Configuration
- Setter-Based /Constructor based
- Use of @Component, @Value
- Autowiring using @Autowired, @Qualifier
- Use of @PostConstruct and @PreDestroy

**Database Access with Spring**
- Issues with JDBC / Typical JDBC Flow
- Introduction to Spring DAO Support
- Queries and Inserts
- Additional API Capabilities
- Using Spring with Hibernate
  - Spring Database API, (Simple)JdbcTemplate, (Simple)JdbcDaoSupport

**Introduction to Spring Web MVC**

**Spring MVC Architecture**
- DispatcherServlet and Context Loader Listener
- Use of Controllers, View Resolvers
- Stereotypes: @Component, @Service, @Controller, @Repository

**Creating a Spring MVC application using Maven**

**Validation Framework**
- Declarative Validation, @NotNull, @Size, @Min, etc
- Custom Validators

**Integration of Spring MVC with JDBC and Hibernate**
- Internationalization
- Spring Tags

**Aspect Oriented Programming (AOP)**
- Overview of AOP
- Introduction to Spring AOP
- AOP Basics
- Aspect, Join point, Advice, Pointcut, Weaving
- Using Aspects
- Using @AspectJ Annotations
- AspectJ Pointcuts, Autoproxies
JavaScript/JQuery/Ajax : 2 Days

Introduction to JavaScript
- What is JavaScript?
- JavaScript and Events
- JavaScript and Old or Disabled Browsers
- JavaScript from External Files

JavaScript deep dive
- The HTML Document and JavaScript
- Syntax
- Debugging in JavaScript
- Data types, Variables, Operators
- Types Of operators : Number, String or Boolean
- Control Structures, Block, Loops, for - in
- Identifying different types of dialog box(alert, confirm, prompt)
- Arrays in JavaScript

Objects
- What Are Objects?
- User-Defined Objects
- Manipulating Objects
- Working with String, Number and Boolean

Validating form using DOM

Event Handling
- Introduction to Event Handlers
- Event Handlers as JavaScript Methods
- Handling Window, Document, History, Navigator objects
- Using Inner HTML with DOM in div tags for event Handling

Introduction to AJAX
- Getting Started with AJAX
- The Purpose of Ajax
- Traditional Web Application
- An Ajax Web Application
- The XMLHttpRequest Object
- Creating an XMLHttpRequest Object
- XMLHttpRequest open() Method
- Using an XMLHttpRequest Object
- Steps to do ajax operation
- Getting JSP or text pages as response
- Response as XML or text
- Handling the Response using INNERHTML
• Use of GET and post with AJAX

Introduction to JQuery
• Overview of JQuery
• Downloading JQuery or using from CDN
• Use of $(document). ready function

DOM manipulation with JQuery
• Use of selectors in JQuery
• DOM traversal and manipulation
• Using Element, Class and ID Selectors with jQuery
• Modifying the Content and Styles of Selected Elements
• Adding and Removing Elements Using jQuery
• Binding events to elements
• Looping over a set of elements
• Adding JQuery UI plugins
  o Date picker
  o Slider
  o Accordion
  o Tabs

Handling Ajax Requests with JQuery
• Get and post requests with JQuery