

Core Java, Adv Java, Hibernate and Spring Framework

Duration: 24 hours

Core Java

Basics of Java

- Java - What, Where and Why?
- History and Features of Java
- Internals of Java Program
- Difference between JDK, JRE and JVM
- Internal Details of JVM
- Variable and Data Type
- Unicode System
- Naming Convention

OOPS Concepts

- Advantage of OOPs
- Object and Class
- Method Overloading
- Constructor
- static variable, method and block
- this keyword

Inheritance (IS-A)

- Aggregation and Composition (HAS-A)
- Method Overriding
- Covariant Return Type
- super keyword
- Instance Initializer block
- final keyword
- Runtime Polymorphism
- static and Dynamic binding

Abstract class and Interface

- Package and Access Modifiers
- Encapsulation
- Object class
- Object Cloning
- Java Array
- Call By Value and Call By Reference

Exception Handling

- Exception Handling: What and Why?
- try and catch block
- Multiple catch block
- Nested try
- finally block
- throw keyword
- Exception Propagation
- throws keyword
- Exception Handling with Method Overriding
- Custom Exception

Multithreading

- Multithreading: What and Why?
- Life Cycle of a Thread
- Creating Thread
- Sleeping a thread
- Joining a thread
- Thread Priority

Input and output

- FileOutputStream & FileInputStream
- ByteArrayOutputStream
- SequenceInputStream
- BufferedOutputStream & BufferedInputStream
- FileWriter & FileReader
- Input from keyboard by InputStreamReader
- Input from keyboard by Console
- Input from keyboard by Scanner
- PrintStream class
- PrintWriter class
- Compressing and Uncompressing File
- Reading and Writing data simultaneously
- DataInputStream and DataOutputStream

Collection

- Collection Framework
- ArrayList class
- LinkedList class
- ListIterator interface
- HashSet class
- LinkedHashSet class
- Map interface
- HashMap class

JDBC

- JDBC Drivers
- Steps to connect to the database

- • Connectivity with Oracle
- • Connectivity with MySQL
- • Connectivity with Access without DSN
- • DriverManager
- • Connection interface
- • Statement interface
- • ResultSet interface
- • PreparedStatement

Java New Features

- • Assertion
- • For-each loop
- • Varargs
- • Static Import
- • Autoboxing and Unboxing • Enum Type
- • Annotation etc.

Advance Java

Basics of Servlet

- Web Application Basics.
- Architecture and challenges of Web Application.
- Introduction to servlet
- Servlet life cycle
- Developing and Deploying Servlets
- Exploring Deployment Descriptor (web.xml).
- Handling Request and Response

Initializing a Servlet

- Accessing Database
- Servlet Chaining
- Session Tracking & Management
- Dealing with cookies
- Transferring Request
- Accessing Web Context
- Passing INIT and CONTEXT Parameter

Basics of JSP

- Life cycle of JSP
- JSP API
- JSP in Eclipse and other IDE's
- scriptlet tag
- expression tag
- declaration tag
- Implicit Objects

- directive tags
- action tags

Hibernate

Introduction to Hibernate (Overview)

- Hibernate Technology Benefits
- Hibernate Architecture Overview
- Persistence lifecycle
- Object identity
- Getting started with Hibernate quickly
- Mapping tables to beans
- Mapping properties to columns

Relationships

- Setting up all types of relationships
- Setting up a one to many relationship
- Understanding bidirectional relationships
- Setting up a one to one relationship
- Setting up an simple inheritance relationship
- Basic queries
- Working with queries
- Named queries

Advanced Queries

- Working with the Query API
- Working with Binding Parameters
- Grouping
- Subqueries
- Native SQL query
- Hibernate Caching
- Caching overview
- Hibernate Caching Architecture
- Hibernate API to control cache

Spring

Introduction to Spring

- What is Spring
- How Spring fits into the Enterprise world
- Spring Modules
- Spring Core(Basic Concepts)
- What is a Core Container
- Introduction to IOC
- Types of DI
- Setter VS Constructor
- Collection DI
- Inner Beans
- Bean Aliasing
- Bean Scopes
- Inner Beans
- Bean Auto wiring

Spring Core (Advanced Concepts)

- Dependency Check
- Depends On

- Instance Factory Method
- Bean Lifecycle

Spring MVC Spring

- Introduction to Spring MVC
- Handler Mapping
- Controllers
- Validations
- Handler Interceptors
- Views
- Form tags

Spring JDBC

- What is DAO pattern?
- Ways to implement Spring DAO
- Choosing an approach for JDBC database access
- JDBC Template
- Executing Statements
- SimpleJDBCInsert
- Running Queries
- SQL Parameters

Web Services & Spring Rest

Overview of Web Services

- Why Web Service

REST Services

- Annotation Based Rest Support
- URI Template
- Content negotiation
- JSON Mapping View
- HttpMethod Conversion
- Rest Template
- Exception Handling
- Message Conversion