



COMPLETE JAVA DEVELOPMENT COURSE

CORE JAVA

MODULE 1: INTRODUCTION TO JAVA

- Why Java was Developed
- Application Areas of Java
- History of Java
- Platform Independency in Java
- USP of Java: Java Features
- Sun-Oracle Deal
- Different Java Platforms
- Difference between JDK, JRE, JVM
- Java Versions
- JVM Architecture
- Installing Java on Windows
- Understanding Path Variable: Why Set Path

MODULE 2: CREATING FIRST JAVA PROGRAM

- Understanding Text Editors to Write Programs
- How to compile java file
- Byte Code and class file
- How to run class file

MODULE 3: JAVA LANGUAGE FUNDAMENTALS

- Identifiers
- Keywords
- Variables
- Literals
- Data Types
- Operators
- Comments
- Looping, Condition Statements
- Type Casting

MODULE 4: OOP IMPLEMENTATION (PIE)

- Why OOP
- OOP Concepts with Real life examples

- Class & it's Syntax
- Object & it's Syntax
- Reference Variable
- Constructors
- Instance(Non-Static) & Static Variables
- Instance(Non-Static) & Static Methods
- this Keyword and it's usages
- Object & Static Initializers (Anonymous Blocks)
- Understanding '+' Operator
- Inheritance & it's Syntax
- Types of Inheritance
- Object Class as Root of Java Class Hierarchy
- Variable Hiding
- Method Hiding
- Method Overriding
- Method Overloading
- Super keyword and it's usages
- Final keyword and it's usages
- Constructor Chaining
- Upcasting and Down casting
- Static & Dynamic Binding
- Run Time Polymorphism
- Abstract Keyword (Abstract classes and methods)
- Understanding Interfaces
- Implementation of Encapsulation
- Association with Implementation

MODULE 5: PACKAGES

- Understanding Packages
- Setting Class path
- Reading Input from Keyboard
- Access Modifiers

MODULE 6: NESTED TYPES

- Static Nested Class
- Non-static Nested Class



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- Local Class
- Anonymous Class
- Nested Interface

MODULE 7: ARRAYS

- General Definition of Array
- Advantages from Array
- Arrays in Java
- 1-d Arrays
- 2-d Arrays
- Jagged Arrays
- Array of reference type
- Operations on Arrays

MODULE 8: COMMAND LINE ARGUMENTS AND WRAPPER CLASSES

- How to read command line arguments
- Wrapper Classes
- Parsing of Numeric Strings
- String representation of Primitives

MODULE 9: EXCEPTION HANDLING

- Types of Runtime Errors
- Understanding Exceptions
- Exception Class Hierarchy
- Try & Catch Blocks
- Patterns of Catch Block
- Nested Try statements
- Throw, throws and finally
- Creating Custom Exceptions
- Checked & Unchecked Exceptions
- Assertion

MODULE 10: WORKING WITH STRINGS

- What is String
- String Class
- Creating String Object
- Operations on String
- String Buffer Class and it's Methods

- Difference between String and String Buffer class
- String Builder Class and it's Methods
- Difference between String Buffer and StringBuilder

MODULE 11: SWING

- Introduction to AWT
- Introduction to Swing Components
- Look and Feel of Swing Components
- MVC Architecture of Swing Components
- Working with Image
- Advance Swing Components
- JOptionPane, JTree, JTable, JTabbedPane, JFileChooser, JcolorChooser
- Menu Components
- J Menu
- JMenuItem
- JMenuBar

MODULE 12: MULTITHREADED PROGRAMMING

- Multitasking: Why Concurrent Execution
- Multiprocessing v/s Multithreading
- Main Thread (Default Java Thread)
- Creating Child Threads and understanding context switching
- Thread States
- Thread Group
- Thread Synchronization: Methods and Blocks
- Inter-Thread communication
- Daemon Threads
- Deadlock

MODULE 13: EXTENDED & UTILITY CONCEPTS

- Generics
- Lambda Expression



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- Annotations
- Object Cloning
- Vargs
- Static-import
- Enum
- Static, Default and Private Methods of Interface
- Var Type
- Java Modules

MINOR PROJECT IMPLEMENTATION

ADVANCE JAVA

MODULE 1: COLLECTION FRAMEWORK

- Introduction of Collection Framework
- Need of Collection
- Collection API (the classes and interfaces)
- The methods of Collection interface
- List Interface (the Array List, Vector, Linked List, and Stack classes)
- The Iterator, List Iterator, and Enumeration interfaces
- Set Interface (the HashSet, Linked HashSet classes)
- Map Interface (the Hash table, HashMap, inked Hash Map, classes)
- The Comparable and Comparator interfaces
- The Tree Map and Tree Set classes
- How Collection Framework is used in industry (the real Project Development)
- Writing an application using Collection API and JDBC

MODULE 2: DATABASE CONNECTIVITY (THE JDBC)

- Concepts of JDBC
- Need Of JDBC

- Types Of JDBC Drivers
- Type1: Jdbc-Odbc bridge Driver
- Type2: Native API Driver
- Type3: Middleware layer
- Type4: Pure Java Driver
- Type3: Middleware layer Driver
- Difference between the JDBC drivers
- Connecting with Databases (MS Access, My SQL, and Oracle)
- Executing query in Database
- Other miscellaneous topics in JDBC

MODULE 3: JAVA EE (JAVA PLATFORM ENTERPRISE EDITION)

- Understanding the Concept of Java EE : JEE Specification
- Java EE Architecture
- Single Tier
- Two Tier
- Three Tier
- N-Tier
- Java EE Components
- Web Components
- Distributed (Business) Components
- Java EE Containers & Servers
- Web Container & Web Server (Apache Tomcat)
- EJB Container & Application Server (WebLogic, Glassfish, WebSphere)
- Java EE Services
- JNDI Service
- Java Transaction Service
- JMS

MODULE 4: JAVA SERVLET

- Introduction to web programming
- Role of Servlet in web programming
- Servlet Lifecycle
- Servlet with Annotations



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- @WebServlet
- @WebInitParam
- @WebListener
- @WebFilter
- @MultipartConfig
- Request Dispatching
- Parameters & Attributes and their differences
- Servlet Config and Servlet Context
- File Uploading and Downloading
- Session Tracking State Management
- Cookie
- URL Rewriting
- Hidden Form Field
- Session Object
- Events & Listeners
- Dependency Injection
- Refreshing Servlet
- Filters

MODULE 5: JAVA SERVER PAGES (JSP) & JSTL

- JSP Architecture
- JSP Elements
- JSP Objects
- Understanding JavaBeans
- Custom Tags
- Using tags of JSTL
- Expression Language

MODULE 6: FRONT END CODING

- HTML
- CSS
- JAVA SCRIPT

MODULE 7: DESIGN PATTERN

- Why Design Patterns...?
- Front Controller
- Composite View

- Factory Pattern
- Singleton Pattern
- DAO Pattern

DEPLOYMENT OF PROJECT

JAVA FRAMEWORKS

MODULE 1: JPA (JAVA PERSISTENCE API)

- JPA overview
- ORM
- JPA Entity
- JPA Association & Inheritance Mapping
- JPA JPQL
- JPA Criteria API

MODULE 2: OVERVIEW OF HIBERNATE FRAMEWORK SPRING

- Hibernate overview
- Hibernate architecture
- Hibernate configuration and mapping file
- Hibernate generator classes
- Hibernate association mapping
- Hibernate inheritance mapping
- HQL, HCQL
- Hibernate caching
- First level cache and Second level cache

MODULE 3: BASIC BEAN WIRING

- Containing your Bean
- Creating Bean
- Injecting into bean properties
- Auto wiring
- Controlling Bean Creation

MODULE 4: ADVANCED BEAN WIRING

- Declaring parent and Child Bean
- Applying method injection
- Injecting Non-spring Beans
- Registering Custom property editors



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MODULE 5: HITTING THE DATABASE

- Learning spring's data Access Philosophy
- Configuring a data source
- Using JDBC with Spring
- Working with JDBC Templates
- Using Spring's DAO Support Classes for JDBC
- Integrate Hibernate with Spring
- Caching

MODULE 6: INTRODUCTION TO MVC

- Define MVC
- Hibernate Injection
- Spring Annotation & Spring Controller

MODULE 7: MAVEN DEPLOYMENT

- Maven Configuration
- Converting Maven to Eclipse
- Various Maven Command

MODULE 8: SPRING

- Spring Overview, Spring Module
- IOC Container
- Dependency Injection
- Spring Beans
- Bean Scops, Bean Configuration
- Setter Injection
- Constructor Injection
- Spring Auto wiring

MODULE 9: SPRING MVC

- Spring MVC Overview
- MVC (Model-View-Controller)
- Dispatcher Servlet

- Configuration Files
- Dispatcher Servlet Architecture
- Creating Controllers
- Creating Models
- Creating Views
- Using Thyme leaf Template

MODULE 10: SPRING BOOT

- Spring BOOT Overview
- Spring BOOT Initializer
- Spring BOOT CLI
- Spring BOOT Starter
- Spring BOOT Autoconfiguration
- Spring BOOT Application Properties
- Spring BOOT RESTful API
- Spring BOOT MVC
- Spring Security
- Spring Data JPA

MODULE 11: BUILDING RESTFUL API using SPRING BOOT

- Web Services
- SOAP Web Services
- RESTful Web Services
- JAX-RS
- Jersey Framework
- HTTP Request Components
- HTTP Response Components
- Resource
- HTTP Web Verbs
- HTTP Endpoints
- HATEOAS

DEPLOYMENT OF MAJOR PROJECT