**Core Java Course Description**

Overview

Learn vital concepts and working principles of Java and Object Oriented Programming.  Internalize OOPs concepts, Java fundamentals, Arrays & Strings, Packages & Wrapper Classes, Exception Handling, Threads, Collection Framework & JDBC Fundamentals. Gain hands-on project experience on our seamless cloud labs as you learn with our industry experts. The course intends to make you industry ready to work on Java applications.

Objective

At the end of Core Java training course, the participant will be able to:

* Internalize Object Oriented Programming concepts
* Internalize basic Java concepts
* Write Java programs using operators, constructors, loops, functions, conditions, etc.
* Implement methods and encapsulation in Java
* Implement multi-threading, string handling, and exception handling techniques.
* Implement Executor Services, Callback and Future Interfaces
* Serialization and Deserialization techniques.
* Implement Reflection and RMI concepts
* JDK 1.8 features
* Design Patterns and Best practices
* Debugging the Java Applications
* Use JDBC connections
* Develop Java applications

Prerequisites

Basic programming knowledge is good to have but not mandatory for this training.

**Course Curriculum**

1. Introduction

* Why Java?
* Flavors of Java
* Java Designing Goal
* Role of Java Programming in industry
* Features of java Language
* JVM- The heart of Java
* Java's Magic Byte code

2. Language Fundamentals

* Java Environment
* Installing JDK and Eclipse IDE - Java Program Development - Java Source File Structure - Compilation - Executions -
* Java Fundamentals
* Data Types - Variables, keywords, Literals - Comments - Assignment ,Initialization –

3. OOPs Concepts Introduction

* Introduction to Oops Concepts
* Inheritance - Polymorphism - Abstraction - Encapsulation -
* Class Fundamentals
* Class, Object - Global variable and member variables - Static and final - Inner and Anonymous Class - Access Control Modifiers - Constructors –

4. Array and String

* Defining of an Array
* Initializing and accessing an Array
* Multi-Dimensional Array
* Operation on String
* Mutable and immutable String
* Using Collection Bases loop for String
* Tokenizing a String
* Creating Strings using String Buffer

5. Oops in java

* Inheritance
* Use of Benefits of inheritance in OOP - Types of inheritance in Java - Inheriting Data Member and Methods - Role of Constructors in inheritance - Overriding super Class methods - Use of \*Super\* - Polymorphism in inheritance -
* Interfaces And Abstract Classes
* Multiple Inheritance - Restrictions for Interfaces - Interface Vs Abstract - Relationship between classes –

6. Packages and Wrapper Classes

* Organizing Classes and interfaces in Packages
* Package as Access Protection
* Defining Package
* CLASSPATH Setting for Packages
* Import and Static Import
* Naming Convention for packages
* What is Wrapper Class
* Why Wrapper
* How to handle wrapper Classes

7. Exception Handling

* What is Exception
* Types of Exception
* Exception Hierarchy
* Control Flow in Exception
* VM reaction to Exception
* Exception handling

8. Thread

* Understanding Threads
* Needs of Multi-Threaded Programming
* Thread Life-cycle
* Thread Priorities
* Synchronizing Threads
* Inter communication of Threads
* Producer and Consumer Problems
* Critical Factor in thread Deadlock
* ExecutorServices
* Callback and Future Interfaces

9. The Collection Framework

* Collection of objects
* Collection Interfaces and Hierarchy
* List And Map
* Types of List
* Types of map
* Iterator and listIterator
* Generics
* Synchronized collections
* Serialization and Deserialization
* Cloneble interfaces
* Comparable and Comparator classes
* Collection Utility class

10. Reflections

* Introductions to Reflection
* Class, Method and Field classes
* Accessing methods and constructors
* Accessing Private methods, fields and constructors
* Accessing parameterized methods

11. RMI

* Introductions to RMI
* Remote interfaces
* Server and CLinet
* RemoteRmiRegistery
* Sample test program

12. JUNIT

* Introductions to Junit
* Junit Test Classes
* Assertions
* testCases
* testSuites
* testRunner

13. JDBC Fundamentals

* Introductions to JDBC
* JDBC Drivers and architectures
* CURD operations using JDBC
* ODBC and other Drivers
* Statement, PrepareStatement classes
* ResultSet and Metadata classes

14. JDK 1.8 Features

* JDK 1.8 features
* Functional interfaces and Anonymous inner classes
* Lambda Expressions
* JDK 1.8 forEach loops
* Consumer interfaces

15. Design Patterns

* Introductions to Design Patterns
* Singleton
* Factory Design Patterns
* Proxy Design Pattern
* DTO
* DAO
* Service Locator
* Business Delegator