

COURSE NAME
Core Java
DURATION
3 Days
LEARNING OBJECTIVES
<ul style="list-style-type: none"> Gain in-depth understanding of core & advanced features of Java including JVM internals Best practices and coding conventions for writing well-designed, professional Java code Solid understanding of Functional-style Programming using Java 8 constructs like Lambdas & Streams Master Object-Oriented Programming concepts by using a real-world application as a case study
LAB REQUIREMENTS DETAILS
<p>Hardware: 4 GB RAM, 320HDD</p> <p>OS: Windows 64 bit OS</p> <p>Software: JDK 8 , Eclipse Oxygen Java EE developer , MYSQL Server</p>
COURSE CONTENT
<p>Basics of Java</p> <p>Java - What, Where and Why?</p> <p>History and Features of Java</p> <p>Internals of Java Program</p> <p>Difference between JDK,JRE and JVM</p> <p>Internal Details of JVM</p> <p>Variable and Data Type</p> <p>Naming Convention</p> <p>OOPS Concepts</p> <p>Advantage of OOPs</p> <p>Object and Class</p> <p>Method Overloading</p> <p>Constructor</p> <p>static variable, method and block this keyword</p>

Inheritance (IS-A)

Aggregation and Composition(HAS-A)

Method Overriding

super keyword

Instance Initializer block final keyword

Runtime Polymorphism

Static and Dynamic binding

Abstract class and Interface

Static & default methods in Interface

Package and Access Modifiers

Encapsulation

Object class

Object Cloning

Java Array

Call By Value and Call By Reference

Conditional Statements vs Switch cases

Loops & Traversing

String Handling

String : What and Why?

Immutable String

String Comparison

String Concatenation

Substring

Methods of String class

StringBuffer class

StringBuilder class

Creating Immutable class to String method

StringTokenizer class

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

Nested Classes

Nested Class: What and Why?

Member Inner class

Anonymous Inner class

Local Inner class

Static nested class

Nested Interface

Serialization

Serialization & Deserialization

Serialization with IS-A and Has-A

Transient keyword

Reflection API

Reflection API

NewInstance() & Determining the class object

javap tool

creating javap tool

creating appletviewer

Accessing private method from outside the class

Multithreading

Multithreading : What and Why?

Life Cycle of a Thread

Creating Thread

Thread Scheduler

Sleeping a thread

Joining a thread

Thread Priority

Daemon Thread

Thread Pooling

Thread Group

Performing multiple task by multiple thread

Garbage Collection

Runnable class

Executor Framework

Synchronization

Synchronization : What and Why?

synchronized method

synchronized block

static synchronization

Deadlock

Inter-thread Communication

Interrupting Thread

Synchronization vs Locks

Concurrent Patterns

Collection

Collection Framework

ArrayList class

LinkedList class

Concurrent Collections

ListIterator interface

HashSet class

LinkedHashSet class

TreeSet class

PriorityQueue class

ArrayDeque class

Map interface

HashMap class

LinkedHashMap class

TreeMap class

Hashtable class

Comparable and Comparator

Properties class

BlockingQueue

CopyOnWriteArrayList

CopyOnWriteArraySet

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

ResultSetMetaData

DatabaseMetaData

Storing image

Retrieving image

Storing file

Retrieving file

Stored procedures and functions

Transaction Management

Batch Processing

JDBC New Features

Mini Project

Java New Features

Assertion

For-each loop

Varargs

Static Import

Autoboxing and Unboxing

Enum Type

Annotation

Functional Programming

Parallel Streams

etc.

Internationalization

Internationalization

ResourceBundle class

I18N with Date

I18N with Time

I18N with Number

I18N with Currency