**Core Java 8 and Development Tools**

**Program Duration**: 13 days

**Contents**:

* Introduction to Java
  + Introduction to Java
  + Features of Java
  + Evolution in Java
  + Developing software in Java
* Eclipse 4.4 (Luna) as an IDE
  + Installation and Setting up Eclipse
  + Introduction to Eclipse IDE
  + Creating and Managing Java Projects
  + Use of Java docs
  + Miscellaneous  Options
* Language Fundamentals
  + Keywords
  + Primitive Data Types
  + Operators and Assignments
  + Variables and Literals
  + Flow Control: Java’s Control Statements
  + Best Practices
* Classes and Objects
  + Classes and Objects
  + Packages
  + Access Specifiers
  + Constructors - Default and Parameterized
  + this reference
  + using static keyword
  + Best Practices
* Exploring Java Basics
  + The Object Class
  + Wrapper Classes
  + Type casting
  + Using Scanner Class
  + String Handling
  + Date and Time API
  + Best Practices
* Inheritance and Polymorphism
  + Inheritance
  + Using super keyword
  + InstanceOf Operator
  + Method & Constructor overloading
  + Method overriding
  + @override annotation
  + Using final keyword
  + Best Practices
* Abstract Classes and Interfaces
  + Abstract class
  + Interfaces
  + default methods
  + static methods on Interface
  + Runtime Polymorphism
  + Best Practices
* Regular Expressions
  + Regular Expressions
  + Validating data
  + Best Practices
* Exception Handling
  + Introduction
  + Exception Types
  + Exception Hierarchy
  + Try-catch-finally
  + Try-with-resources
  + Multi catch blocks
  + Throwing exceptions using throw
  + Declaring exceptions using throws
  + User defined Exceptions
  + Best Practices
* Array
* One dimensional array
* Multidimensional array
* Using varargs
* Using Arrays class
* Best Practices
* Collection
  + Collections Framework
  + Collection Interfaces
  + Implementing Classes
  + Iterating Collections (using foreach & iterator)
  + Comparable and Comparator
  + Best Practices
* Generics
  + Generics
  + Writing Generic Classes
  + Using Generics with Collections
  + Best Practices
* File IO
  + Overview of I/O Streams
  + Types of Streams
  + The Byte-stream  I/O hierarchy
  + Character Stream Hierarchy
  + Buffered Stream
  + The File class
  + The Path class
  + Object Stream
  + Best Practices
* Property Files
  + What are Property Files?
  + Types of Property files
  + User defined Properties
* Introduction to Junit 4
  + Introduction to Junit 4
  + Why testing
  + Why use Junit
  + Installing and Running Junit
  + Understanding Junit Framework
  + Testing with JUnit
* Java Database Connectivity
  + Java Database Connectivity - Introduction
  + Database Connectivity Architecture
  + JDBC APIs
  + Database Access Steps
  + Calling database procedures
  + Using Transaction
  + Connection Pooling
  + DAO Design Pattern
  + Best Practices
* Introduction to Layered Architecture
* Logging with Log4J
  + Log4J Concepts
  + Installation of Log4J
  + Configuring Log4J
  + Best Practices
* Muliti Threading
  + Understanding threads
  + Thread life cycle and Scheduling threads- Priorities , Sleep(),join()
  + Consumer Producer problem
  + Inter Thread communication : wait, notify, notifyAll methods
  + Synchronization concept