

# PROGRAMMING IN JAVA

## 1. Introduction to Java

- The Basics of Java-A brief history of Java, The Java, Architecture, Java Features. Importance of Java to the Internet. Java Applets and Applications, Fundamentals of Object programming, concepts of OOP, Benefits of OOP, Java and C++, Java Environment, Java Development kit, Application programming Interface (API), Getting started with JDK, Java program structure, Using Java with other Tools.

## 2. Language Basics

- Java tokens, Java character set, keywords, Identifiers, Literals, Separators, constants, Variables. Data types, type Casting, Constants, Variables and their Scope, Operators and Expressions, Arithmetic Operators, Relational & Conditional Operators, Logical Operators, Assignment Operators, Increment & Decrement, Bitwise Operators, Special Operators, Precedence of Operators, Control Flow statements-If & If else statements, switch Statement, for loop, while do loop, Branching.

## 3. Objects and Classes in Java

- Introduction to classes, defining a class. Creating objects, methods, Constructors and Access Specifies, Application of Constructor, Parameterized constructors, Overloading Methods and Constructors, Access control Modifiers: Public. Private, and protected, Static. Final and Abstract Modifiers, Inheritance and Method Overriding. Inheritance basics, Method overriding.

## 4. Arrays, Strings and Vectors

- Arrays, One-dimensional array, Multidimensional array, Strings, String class, Working with Strings, String Buffer Class, Vector and wrapper class, Vector Constructors, Working with vector methods, Wrapper Class.

## 5. Packages and Interfaces

- Using Java Interfaces, Defining and Interface, Implementing and Interface, Extending and Interface, Using Java Packages, defining a Package, Brief discussion on CLASSPATH, Access Protection, Importing a package, Java API Package,

## 6. Exception handling

- Introduction to Exception Handling, why use Exception Handling, Fundamentals of Exception Handling, Exceptions & their types, Common Exceptions, Using Exception Handling, Using try and catch, Multiple Catch Statements, Nested try Statements, Methods available to Exceptions, Throwing your own Exception.

## 7. Applet programming.

- Writing Applets, The Basics of Applets, Life Cycle of an Applet, Painting the Applet, The Applet Tag, Security Restrictions when using Applets, Taking, Advantage of the Applet API, Finding and Loading Data Files, Displaying short Status Strings. Displaying Documents in the Browser, Playing Sounds Defining and Using Applet Parameters.

## 8. Working in Graphics

- The Graphic class. java.awt.Graphics, Uses of class java.awt.Graphics, Custom Painting, Drawing Lines, Drawing Lines, Drawing Rectangles. Drawing Ellipses and Circles, Drawing Arcs, Drawing Polygons.

**Practical :- Exercise Based on above theory concepts.**