

Java SE

## **Introduction to Java**

- JDK
- JRE

## **Discussion of Java features and OOPS Concepts**

### **Installation of Netbeans IDE**

#### **Datatypes**

- primitive data types
- non-primitive data types

#### **Variable declaration**

#### **Operators**

#### **Control flow statements**

#### **Command line arguments**

#### **Passing command line arguments in Netbeans**

#### **Take input and display output**

#### **Arrays and Enhanced for loop**

#### **OOPS programming**

- class and object
- various types of constructors
- instance methods and static methods
- use of this keyword
- use of super keyword
- inheritance
- polymorphism
- package and various scope rules
- abstract class and interfaces
- use of static, final keyword
- inner class
- anonymous class
- anonymous inner class

### **Exception handling**

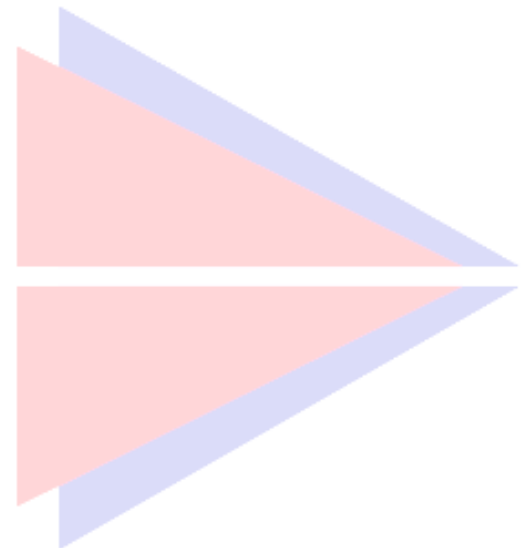
- try, catch, finally, throw, throws
- checked exception
- unchecked exception

### **String Handling**

- mutable string
- immutable string
- String, StringBuilder, and StringBuffer
- Important Methods in the String Class

### **IO (Input and Output)**

- byte stream
- character stream
- Working with Files and Directories
- bridge classes
- Object Serialization



## **Working with Date class**

### **Generics and Collections**

- List, Set, Map, Queue interface and its implementing classes
- Utility classes

### **Wrapper classes**

### **Enums, Autoboxing, Unboxing and Annotations**

### **Multithreading programming**

- Thread class
- Runnable interface
- Synchronization
- Fork/join framework

### **GUI programming**

- Difference between CUI and GUI
- Swing (various components and containers)
- Event handling
- Layout manager
- Applet through JApplet
- Drawing
- MDI (Multiple document interface)
- Develop GUI using Netbeans Drag n drop feature

### **JDBC (Java database connectivity)**

- Type of drivers
- Basics of SQL
- executing SQL using statement
- executing SQL using preparedstatement

### **Socket programming**

### **RMI (Remote method invocation)**

### **XML programming in Java**

### **Send email from Java application using JavaMail API**

### **Use web service in Java application**

### **Generate HTTP request from Java application**

### **OpenJDK**

## Project

### Android

#### History and platform-independence.

**Introduction** to Java,JSE,JEE,JME,Web services,Other technologies.

JVM,JRE and JDK

#### Simple Java Program Structure

- Documentation section
- Package statement
- Import statement
- Interface statement
- Class definition
- Main class method

#### Creating, compiling and running program

**Command Line argument**

#### Object Orientation

- **Classes:** Introduction, Definition, Field, Methods.
- **Objects:** Concept, Creation, Accessing Members.
- **Constructors:** Types, Overloading.
- Static Members

**Java Beans:** Concept, getters and setters.

- **Inheritance:** Subclassing, Constructor chain, Method Overriding.
- **Final:** Class, Variable, Methods .
- **Abstract:** Classes ,Methods.
- **Varargs** Methods
- **Visibility** Controls.
- **Interfaces:** Defining, Extending, Implementing
- **Package:** naming, creating, accessing, usage.

- Understanding IS-A,HAS-A Relationship Polymorphism, Encapsulation, Abstraction, Inheritance

**Arrays:** Declaration,creation,initialization,1-D,2-D,n-D

**String:** Methods, Immutable Objects, Regex, toString(), StringBuilder, StringBuffer.

Enumerations and Annotations **JVM:** Java Heap, Stack, Garbage collection, hashCode(),equals(). Wrapper Classes and Static Imports Socket Programming

**Exception Handling:** Throwable, Errors, Exceptions, try ...catch.... finally, throws, Exception classes.

**Multithreading:** Thread creation by extending Thread and implementing Runnable, Life cycle, Thread Exceptions, Priorities, Synchronisation.

**IO:** Stream Classes, Byte Stream, CharacterStream, File Handling, IO Exceptions, Serialization.

**Generics:** Concept, Generic Methods and Classes.

**Inner Classes:** Method-local inner classes, Anonymous inner classes, Static nested classes.

**Collection:** Set, List, Map, Collection Interface, Collections class, Sorted-Unsorted, Order-Unordered, Queue, Autoboxing with collections, Comparable Interface Event Handling with Swings.

## **Introduction to Android Programming**

- Android OS
- Architecture
- Dalvik Virtual Machine
- Android SDK
- Android Development Tools(ADT)
- Android Virtual Devices(AVD)

## **Activities**

- Activity Life cycle
- Style and Themes
- Activity Title
- Dialog Windows

- Progress Dialog

## **Intents**

- Linking activities using intents
- Filter Collision
- Intent Object and usage.
- Calling built-in application.
- Intent object
- Intent filters

## **Notifications**

- Displaying notifications

## **Fragments**

- Life cycle
- Adding fragments Dynamically
- Fragment Interaction

## **User Interface**

- Views and ViewGroups
- Layouts-Linear, Absolute, Table, Relative, Frame
- Scroll View • Display Orientation
- Managing Screen Orientation
- Action Bar
- Programmatically creating UI
- Listening to UI Notifications

## **Basic Views**

- TextView, Button, ImageButton, EditText, CheckBox, ToggleButton, RadioButton, RadioGroup, ProgressBar View, AutoCompleteTextView View
- Picker View-TimePicker and DatePicker
- ListView and Spinner View
- Specialized Fragments

## **Image Views**

- Gallery and ImageView
- ImageSwitcher
- GridView

## **Menus**

- Helper methods
- Options Menu
- Context Menu
- Additional Views-AnalogClock,DigitalClock,Web View

## **Persisting Data**

- Saving and Loading Preferences
- Saving data to files
- Creating and Using Databases

## **Content Providers**

- Data sharing
- Using a content provider.
- Creating content provider.

## **Messaging**

- SMS Messaging
- Sending Email

## **Location Based Services**

- Displaying Maps
- Location data
- Monitoring Location

## Networking

- Consuming Web Service via HTTP.
- Consuming JSON Services.
- Socket programming

## Android Service Development

- Creating service
- Services communication
- Activity and Service binding.
- Understanding Threading.

## Publishing Android Application

- Preparing application for publishing.
- Deploying APK Files.