

### 1. Java Language Environment

- a. Object Oriented
- b. Platform Independent
- c. Automatic Memory Management
- d. Compiled / Interpreted approach
- e. Robust
- f. Secure
- g. Dynamic Linking
- h. MultiThreaded
- i. Built-in Networking

### 2. Java Fundamentals

- a. Data types
- b. Operators
- c. Control Statements
- d. Arrays
- e. Enhanced for-loop
- f. Enumerated types,
- g. Static import
- h. Auto boxing
- i. C-style formatted I/O
- j. Variable arguments

### 3. Essentials of Object-Oriented Programming

- a. Object and Class Definition
- b. Using encapsulation combine methods and data in a single class
- c. Inheritance and Polymorphism
- d. Writing Java Classes
- e. Encapsulation
- f. Polymorphism
- g. Inheritance

- h. OOP in Java
- i. Class Fundamentals
- j. Using Objects
- k. Constructor
- l. Garbage Collection
- m. Method Overloading
- n. Method Overriding
- o. Static Members
- p. Understanding Interface
- q. Using Interfaces

## 4. Packages

- a. Why packages
- b. Understanding Classpath
- c. Access modifiers & their Scope

## 5. Exception Handling

- a. Importance of Exception Handling
- b. Exception Propagation
- c. Exception Types
- d. Using try and catch
- e. throw, throws, finally
- f. Writing User defined Exceptions

## 6. I/O Operations in Java

- a. Byte Oriented Streams
- b. File Handling
- c. Readers and Writers

## 7. Multithreaded Programming

- a. Introduction Multi-Threading
- b. Understanding Threads & its State
- c. Java Threading Model
- d. Thread class & Runnable Interface
- e. Thread Priorities
- f. Thread Synchronization
- g. Inter thread Communication
- h. Preventing Deadlocks

## 8. Network Programming

- a. Introduction Networking
- b. InetAddress
- c. URL
- d. TCP Socket and ServerSocket
- e. UDP Socket

## 9. Java Util Package / Collections Framework

- a. Collection & Iterator Interface
- b. Enumeration
- c. List and ArrayList
- d. Vector
- e. Comparator
- f. Set Interface & SortedSet
- g. Hashtable
- h. Properties

## 10. Generics

- a. Introduction Generics
- b. Using Built-in Generics Collections
- c. Writing Simple Generic Class
- d. Bounded Generics
- e. Wild Card Generics

## 11. Inner Classes

- a. Nested Top Level Classes
- b. Member Classes
- c. Local Classes
- d. Anonymous Classes

## 12. Abstract Window Toolkit

- a. Graphics
- b. Color and Font
- c. AWT Components/Controls
- d. Event Handling & Layouts

## 13. Swing Programming

- a. Introduction Swing & MVC Architecture
- b. Light Weight Component
- c. Swing Hierarchy
- d. Atomic Components e.g. JButton, JList and more
- e. Intermediate Container e.g. JPanel, JSplitPane and more
- f. Top-Level Container e.g. JFrame and JApplet
- g. Swing Related Events