

COURSE CONTENTS

Introduction

- Programming language Types and Paradigms.
- Why Java?
- Flavors of Java.
- Java Designing Goal.
- Role of Java Programmer in Industry.
- Features of Java Language.
- JVM The heart of JAVA.
- Abstract Class
- Interfaces
- Objects Cloning shallow and deep cloning

Language Fundamentals

- The Java Environment.
- Installation
- Java Program Development
- Java Source File Structure
- Compilation
- Executions

- Basic Language Elements
- Java Tokens, Identifiers
- Keywords, Literals, Comments
- Primitive Data types
- Type Casting
- Operators
- Condition Statements
- Control Statements
- Arrays
- Command line Arguments

Object Oriented Programming

- OOPS Fundamentals.
- Class & Object
- Encapsulation
- Constructors
- Method Overloading, Recursion.
- Access Specifiers & Access Modifiers.
- Design of Accessor and Mutator Methods.
- Inheritance
- Polymorphism
- Inner Class & Anonymous Classes

String Handling

- String
- StringBuffer &StringBulider

Packages

- Organizing Classes and Interfaces in Packages
- Introduction to all pre-defined Packages
- Defining Package
- CLASSPATH Setting for Packages
- Making JAR Files for Library Packages
- Import and Static Import

Exception Handling

- Exceptions & Errors
- Types of Exception
- Control Flow In Exceptions
- JVM reaction to Exceptions
- Use of try, catch, finally, throw, throws in Exception Handling
- In-built and User Defined Exceptions
- Checked and Un-Checked Exceptions

Inner Classes

- Introduction
- Member Inner Class
- Static Inner Class
- Local Inner Class
- Anonymous Inner Class

Multi Threading

- Understanding Threads
- Needs of Multi-threaded Programming
- Thread LifeCycle

- Creating Child Threads
- Multiple Threads in a program
- Thread Priorities
- Synchronizing Threads
- Wait(), notify() and notifyAll()
- Inter Communication of Threads
- Critical Factor in Thread DeadLock

Input/Output Operation in Java(java.io Package)

- Streams and the new I/O Capabilities
- Understanding Streams
- The Classes for Input and Output
- The Standard Streams
- Working with File Object
- File I/O Basics
- Reading and Writing to Files
- Byte Streams
- Character Streams

Wrapper Classes

- Introduction
- Byte, Short, Integer, Long
- Float, Double
- Character
- Boolean

GUI Programming- AWT & Swings

- Designing Graphical User Interfaces in Java
- Components and Containers
- Basics of Components
- Using Containers
- Layout Managers
- AWT Components
- EventDriven Programming in Java
- Adapter Classes as Helper Classes in Event Handling
- Anonymous Inner classes a Short cut to Event Handling
- Adding A Menu to Window
- Dialog Boxes
- Built-in Dialog Boxes – FileDialog
- Extending GUI Features Using Swing
- Components
- Swings

APPLETS

- Applet & Application
- Applet Architecture
- Parameters to Applet
- Embedding Applets in Web page
- Applet Security Policies

Collections Framework & Utility Classes

- Introduction to Collection Framework
- Date & Time
- Utility Methods for Arrays
- String StringTokenizer
- Observable and Observer Objects
- Data structures
- List interface & its classes
- Set interface & its classes
- Mapinterface & its classes
- Timer and Timer Task for Job Scheduling
- Using Scanner
- Regular Expression
- Use of ArrayList & Vector

Networking in Java

- Networking Essentials
- Socket Programming
- Java.net.InetAddress
- Datagrams
- URL
- Multicast Sockets

New Features of Java SE 5.x & 6.x:

- Enhanced for loop
- Autoboxing & Unboxing
- Typesafe Enums
- Varargs
- Static import
- Annotations
- Generics
- Reflection API
- Enhancement in Java SE 7