Object Oriented Programming using JAVA

Core Java (JSE 1.7)

COURSE CONTENTS.

Course Objective: the main objective of this course is to create Standalone applications using java 1.7.

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.

Language Fundamentals

The Java Environment.

- Installation
- Java Program Development
- Java Source File Structure
- Compilation
- Executions

Basic Language Elements.

- Lexical Tokens, Identifiers
- Keywords, Literals, Comments
- Primitive Data types
- Operators
- Condition Statements
- Control Statements
- Arrays
- Command line Arguments

Object Oriented Programming

- OOPS Fundamentals.
- Object & Object reference.
- Constructors.
- Method Overloading, Recursion.
- Access Specifiers & Access Modifiers.
- Design of Accessor and Mutator Methods.
- Inheritance
- Abstract Class

- Interfaces
- Cloning Objects, shallow and deep cloning

Packages

- Organizing Classes and Interfaces in Packages
- Package as Access Protection
- Defining Packages
- CLASSPATH Setting for Packages
- Making JAR Files for Library Packages
- Import and Static Import
- Naming convention for Packages

Exception Handling

- The idea behind Exception
- Exceptions & Errors
- Types of Exception
- Control Flow In Exceptions
- JVM reaction to Exceptions
- Use if try,catch,finally,throw,throws in Exception Handling
- In-built and User Defined Exceptions
- Checked and Un-Checked Exceptions
- Top 10 Exceptions

Multi Threading

- Understanding Threads
- Needs of Multi-threaded Programming
- Thread Life-Cycle
- Creating Child Threads
- Multi Threads in a program
- Thread Priorities
- Synchronizing Threads
- Producer consumer Problem Solving
- Inner Communication of Threads

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
- Buffer and Buffer Management
- Read/Write Operations with File Channel
- Fromatted Input/Output
- Sequence Input
- Random Access
- Serializing Objects
- Character Streams

GUI Programming

- Designing Graphical User Interfaces in Java
- Components and Containers
- Basics of Components
- Using Containers
- Layout Managers
- AWT Components
- Event-Driven 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

APPLETS

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

Collections Framework & Utility Classes

- Utility Methods for Arrays
- String Tokenizer
- Observable and Observer Objects
- Date & Time
- Data structures
- Timer and Timer Task for Job Scheduling
- Using Scanner
- Regular Expression
- Collections of Objects
- Colletion Types
- List
- Set
- Sequence
- Map
- Understanding Hashing
- Use of ArrayList & Vector
- Hashtable & HashMap

Annotations
Generics
Reflection
Java SE 6.x/ 7.x Features
SCJP (OCP JSE)
Project