Core JAVA

Total – Rs. 3500 (1months)

Introduction

- Installing JAVA
- Environment Setup in Java
- Java Evolution & History
- Features of JAVA
- **Java Program Development**
    - Data types & Variables
    - Different types of Comments
    - Constants & Keywords
    - Compilation
    - Executions
    - Command line arguments

Core Programming

- Flow Control
    - Sequential
    - Conditional
    - Looping
- Use of break & continue
- Switch case
- Operators in Java
- **Packaging in JAVA**
    - Create package
    - Import package
    - Compile and Execute using Package
- **Java Achieve (JAR)**
    - Creating & Extracting JAR
    - Compiling & Execute programs using JAR
    - Execute packaged based JAR file
- Path & Class Path
- Java Naming Convention

Java Editor

- Download & Install editor
- Setup environment of editor
- Execute a JAVA Project
- Setup Build Path
- Debugging using editor

Object Oriented Programming

- Object
- Classes
- Abstraction
- Encapsulation
- Inheritance
- **Polymorphism**
    - Overloading in Java
    - Overriding in Java
- **Constructor in Java**
    - Constructor chaining
    - Constructor Overloading
    - Use of this & super keyword
    - Use of this & super functions

Java Advance Features

- **Arrays**
    - Single dimensional Array
    - String based Array handling
- Casting in Java
    - Auto Widening & Explicit Narrowing
    - Object Casting

JAVA Modifiers

- Access Specifiers
    - Private
    - Public
    - Protected
    - Package-private
- Static
- Final
- Synchronization
- Abstract Class
- Interface

AWT

- What is Abstract Windowing Toolkit?
- AWT Components
- AWT Containers
    - Panel
    - Frame
- AWT Controls
- Event handling
- Layout Manager
    - Flow Layout
    - Grid Layout

- o Border Layout
- AWT Menus Classes

Swing
- Hierarchy Classes
- Difference between AWT & Swing
- Design Components
- Developing Containers
- Event Handling

Exception Handling
- Exception Hierarchy
- Checked & Unchecked Exceptions
- Errors in java
- Exception handling using try, catch & finally

String Handling
- String literal
- String pool
- Difference between '==' and equals() method
- Concatenation
- String functions
- String Splitting
- String Tokenizer
- String Buffer
- String Builder
- String based programming paradigms

Input / Output
- What is Streams?
- Types of Streams
- OutputStream Classes
- InputStream Classes
- File Handling
  - o Read & Write into file
  - o Append data into file
  - o Delete a file
  - o Copy file

Java Database Handling
- Database Installation & Environment Setup
- Types of JAVA Drivers
- Steps to Create Database Connection
- Database URL's
- SQL Scrapbook

- Read data using Statement
- Read data using Prepared Statement
- Difference between Statement & Prepared Statement
- Read data using Datasource
- Insert data into database
- Update data into database
- Delete date into database

Multithreading / Concurrency
- Multiprocessing & Multitasking
- What is JAVA thread?
- What is Multithreading & Why required?
- Life Cycle of Thread
- **Creating Java Thread**
  - Thread class
  - Runnable Interface
- Thread Group
- Types of Thread
  - User Thread
  - Daemon Thread
- Thread Synchronization

Assignments
- More than 50 programs to build up Logic
- Using Simple Statement, Conditional, Looping, Multiple-If
- Using Jars
- Using Switch Case, Ternary Operator
- Using Command Line Argument
- Using Arrays
- Using OOP like Polymorphism
- Using Exception Handling
- Using String Handling
- Using IO & Serialization
- Others Java topics like Threading, Collections, JDBC, etc