advanced
knowledge
services

technovalley
SOFTWARE CONSULTING

Java

JAVA

80 Hours

SYLLABUS

1. JAVA Basics (1O hrs)

- History of Java
- Difference between Java and other programming languages.
- Features of Java
- Working of Java
- JDK tools- javac, java, appletviewer
- Set path and how to run Java Program in Command Prompt
- JVM
- Byte code
- Java Program Structure
- Packages in java
- Java naming rules and conventions
- comments
- Wrapper Classes
- Conditional Statements
- Looping constructs
- Create objects of class
- Functions
- Variable types – local, instance and static variables
- Parameterized functions
- Function overloading
- Variable argument function

2. IDE (1 hr)

Eclipse:

- Overview
- Menus
- Views
- Perspective
- Workspaces
- Create project
- Create package
- Create java class
- Run Configuration
- Running Program
- Build Project

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3. OOPS (10 hrs)

- OOPs concepts in JAVA
- Object Oriented Features
- Constructors
- Constructor overloading
- Types of inheritance – single, hierarchical and multilevel
- Base class and child class concepts
- Access specifies and scope of variables – public, private, protected
- Method overriding
- super-3 uses
- final- 3 uses
- Static functions and properties
- Dynamic method dispatch (Runtime Polymorphism)
- Order of constructor calling in inheritance
- Abstract class
- Interface

4. Lambda Expression (1hrs)

- Introduction to functional Programming
- Syntax of Lambda Expression
- Example

5. Inner Class and Nested Class (2 hrs)

- Regular inner class
- Method local inner class
- Anonymous inner class
- Static nested class

6. Exception handling and assertions (3 hrs)

- Exception hierarchy in java
- Exception handling in Java
- Error Vs Exception
- Types of Exception
  - Checked and unchecked exceptions
- Try-catch-finally
- Nested try and multi catch statements
- Throw and throws clause
- Creating user defined exceptions
- Assertions

7. Strings (3 hrs)

- String, StringBuffer and StringBuilder
- Built-in methods in String and StringBuffer class and its usage

8. Arrays (3 hrs)

- One-dimensional array
- Enhanced for loop
- Two-dimensional array (dynamic column size)
- Multidimensional array

9. Collection Framework (12 hrs)

- Introduction to Collection framework
- List Interface
- ArrayList
- Vector
- LinkedList
- Set Interface
- HashSet
- LinkedhashSet
- TreeSet
- Map Interface
- HashMap
- HashTable
- LinkedHashMap
- TreeMap
- Queue and Priority Queue

10. Generics (2 hrs)

- Introduction to Generics code
- Mixing Generics and Non Generic code
- Polymorphism in Generics
- Generics methods

11. Date (2 hrs)

Create and manipulate calendar data using classes from

- java.time.LocalDateTime
- java.time.LocalDate
- java.time.LocalTime
- java.time.format.DateTimeFormatter
- java.time.Period

12. Annotations (3 hrs)

- What is Annotation and its usage
- Built in Annotations
- User Defined Annotations

13. File Navigation and IO (6 hrs)

- Introduction to java.io package
- Character and Byte Streams
- File Class
- Character Classes – FileReader, FileWriter, BufferedReader, BufferedWriter, PrintWriter
- Byte Streams – FileInputStream, FileOutputStream, BufferInputStream, BufferedOutputStream
- Object Serialization
- ObjectInputStream and ObjectOutputStream
- readObject() and writeObject()
- Serialization in inheritance

14. Multithreading (2 hrs)

- What is Multithreading
- Lifecycle of Thread
- Creating Thread
- Thread Scheduler
- Sleeping a thread
- Starting thread
- Calling run()
- Joining thread

15. MySql (10 hrs)

- Introduction to RDBMS
- Introduction to MYSQL
- Installing MYSQL, Using MYSQL Admin
- Designing & Creating a Databases
- Creating Tables
- Data types for Fields
- Showing and using databases, displaying databases and tables
- Working with Queries at the command prompt, displaying one row at a time from a result set
- Relationships between tables (one to one, one to many, many to many)
- SQL Queries - SELECT, INSERT, DELETE, UPDATE, ALTER, JOINS, SUBQUERIES, Constarints
- MYSQL functions
- Using Stored Procedures

15. JDBC (10 hrs)

- JDBC Introduction
- JDBC Driver
- DB Connectivity steps
- Connectivity Java with MySQL Driver Manager
- Connection
- Statement
- ResultSet

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