Java Training (Advanced)

1. Introduction to Java

- What is Java?
- Java Features
- Sample Java Program
- JDK, JRE and JVM
- Java Variables
- Java Data Types
- Operators
- Keywords

2. Control Statements

- Java Control Statements
- If-else
- Java Switch
- For Loop
- While Loop
- Do While Loop
- Java Break
- Java Continue
- Java Comments

3. Object Class

- Object and Class
- Method
- Constructor
- Static keyword
- This keyword

4. Java OOPs Concepts

- Java Inheritance

  - Inheritance (IS-A)
  - Aggregation (HAS-A)

- Java Polymorphism

  - Method Overloading
  - Method Overriding
  - super keyword
  - final keywords
  - Runtime Polymorphism
  - Dynamic Binding

- Java Abstraction

  - Abstract Class
  - Interface

- Java Encapsulation

  - Package
  - Access Modifiers
  - Encapsulation

5. Java Inner Class

6. Java String and Array

- Java String and operations on String
- Java Array and Types of Arrays

7. Exceptional Handling

- Java Exceptions
- Try – Catch block
- Nested Try
- Multi – Catch
- Finally block
- Throw Keyword
- Throws Keyword

8. Multi-threading in Java and Synchronization

- Life cycle of a thread
- Thread Creation
- Sleeping a thread
- run() method
- Daemon thread
- Thread pool
- Thread group
- Garbage Collection
- Synchronization in Java
- Dead lock in Java

9. Java I/O and Serialization

- Java Input/Output
- File Input/Output Streams
- Buffered Input/Output Streams
- File Permission
- Writer/Reader
- File
- Java Serialization
- Java Transient keyword

10. Java Collections

- Collection Framework
- ArrayList, LinkedList
- List interface
- Hashset, Linked Hashset
- Java Treeset
- Queue and Priority Queue
- Deque and ArrayDeque
- Map interface
- Hashmap. LinkedHashmap
- Treemap
- HashTable
- Collections class
- Collection Interface

11. Java JDBC

- JDBC Driver
- DB Connectivity steps
- Connectivity with MySQL
- Driver Manager
- Connection, Statement, ResultSet, PreparedStatement

12. Java Servlets

- Servlets introduction
- Servlet Life Cycle
- Working of Servlet
- Servlet Request and Servlet Collaboration
- ServletConfig and ServletContext interfaces
- Attribute in Servlet

- **Servlets Advanced**

- Session Tracking
- Event and Listener
- Servlet Filter
- Servlet CRUD
- Servlet Pagination

13. JSP

- JSP Introduction
- JSP Life Cycle
- Scripting Elements
- Implicit Objects
- Directive Elements
- Exception
- Action Elements

- ➢ MVC in JSP
- ➢ JSTL
- ➢ Custom Tags
- ➢ Pagination
- ➢ JSP CRUD

14. Maven

- ➢ Maven Introduction
- ➢ Maven Repository And Its Types
- ➢ Pom.xml
- ➢ Maven Web App
- ➢ Maven Goals And Plugins

15. Git / GitHub

- ➢ VCS (Version Control Management System)
- ➢ Git / GitHub Introduction
- ➢ Tools and Terminologies
- ➢ Git Commands
- ➢ Working on git with a sample project

16. Hibernate

- ➢ ORM and JPA
- ➢ Hibernate Introduction
- ➢ Hibernate using xml and Annotations
- ➢ Inheritance Mapping
- ➢ Hibernate Mapping
- ➢ Hibernate Transaction Management
- ➢ HQL and HCQL
- ➢ Named Query
- ➢ Hibernate Caching

17. RESTful Web Services

- ➢ Introduction to RESTful Web Services
- ➢ Terminology, Characteristics and Architecture of Web Services
- ➢ Components of Web Services
- ➢ SOAP vs RESTful Web Services

18. Spring

- ➢ Spring Introduction
- ➢ IOC and DI
- ➢ Spring JdbcTemplate
- ➢ Spring ORM
- ➢ Spring MVC
- ➢ Spring Security
- ➢ Spring Boot