JAVA FULL STACK TRAINING SYLLABUS

Java Introduction

- History
- Java platforms and versions
- Java infrastructure (JDK, JRE, JVM)
- Simple Hello application
- Execution flow
- Java buzzwords
- Data types
- Wrapper class
- Command line arguments.

Java SE Basics

- Narrowing & Widening
- Boxing & Unboxing
- Access modifier
- Class, Reference and Instance
- Constructor chaining
- Value type vs Reference type
- Package
- Static initializer block, Static field and method.
- Final field
- Array and its types
- Variable argument method
- Enum

OOPS Concept

- Association, Aggregation & Composition
- Jar file creation and use
- Inheritance basics
- Upcasting & Down casting
- Dynamic method dispatch
- Final class & method
- Abstract class & method

OOPS Concept & Exception Handling

- Equals method
- Abstract class implementation
- Instance of operator
- Exception handling

- Try with resource
- Rules of method overriding

Generics and Interface

- Generic programing without generics and its limitations
- Generics basics
- Wild card and its type
- Fragile base class problem
- Interface concept and its use
- Type of inheritance

Basics of Functional Programing

- Nested class and its type
- Local class and its type
- Lambda expression, method reference and constructor reference
- Interface implementation of
- Cloneable
- Comparable & comparator
- Iterable & iterator
- String handling using string, String buffer, string builder and string tokenizer.

Collection Framework

- Introduction of collection interface and class hierarchy
- Implementation of Array List, Vector stack and Linked List
- Enumeration, Iterator, List iterator
- Fail fast vs fail safe iterator
- Hashcode concept
- HashMap and TreeMap implementation
- Queue

JAVA 8 Streams, File IO

- Introduction of dictionary and map interface
- HashMap, Hash table and TreeMap implementation
- Java 8 streams
- File basics
- Binary file manipulation

File IO, Reflection & Annotation

- Manipulate text files.
- Metadata concept and reflection basics
- Java 8 annotations
- Custom annotation

Multithreading
- Process vs thread
- Thread creation and termination
- Thread joining
- Race condition, Locking & unlocking using synchronized keywords
- Monitor concept
- Inter thread communication
- Thread life cycle

Java Database Connectivity
- JDBC concept
- JDBC driver
- Statement, PreparedStatement
- ResultSet
- Stored procedure and Function call using Callable Statement
- JDBC transaction

JDBC
- Java reflection
- Java annotations
- JDBC introduction
- CRUD operations
- Transactions
- Data Access Objects (DAO)

Servlets
- HTTP protocol
- Request Response Model
- Servlet Life Cycle
- Init Parameters
- Load on Startup
- State Management
- Servlet Context
- HTTP Redirection
- Request Dispatcher
- Listeners
- Filters

Java Server Pages
- Introduction
- JSP Life Cycle
- Implicit Objects
- Standard Actions

- JSP & Java Beans
- JSTL & EL
- MVC implementation

Hibernate

- Introduction
- Architecture
- Configuration
- Entity Life Cycle
- CRUD operations
- Transactions
- Criteria & Detached Criteria
- HQL Queries
- Named Queries
- Calling Stored Procedures
- Generator Classes
- Entity Relationship
- Inheritance
- Catching

Spring Framework

- Introduction
- Architecture
- Spring Beans
- Application Context
- Dependency Injection
- Auto wiring
- Stereotype Annotations
- Bean Scopes
- Spring EL
- Aspect Oriented Programming
- Spring Web – MVC
- Configuration
- Validations
- Localization
- JDBC template
- Hibernate template
- REST Web Services
- REST Client using JS
- Web Application Context
- Web Application Deployments

Spring Boot
- Introduction
- Starter Project
- Spring Data basics
- REST Services

MySQL
- Introduction
- DDL commands, DML commands
- Operators, Functions, Constraints, joints, views, indexes
- DCL & TCL commands
- Exception handling

Additional Topics
- Introduction to DevOps tools
- Introduction to Application development on cloud