JAVA DEVELOPER

SYLLABUS

1. CORE JAVA

1.1. Introduction To Java

1.2. Java History

1.3. Why Java

1.4. Features of Java

1.5. Environment Setup

1.6. Hello World Application

1.7. Java Program Internal

1.8. JDK, JRE, JVM

1.9. JVM- Java Virtual Machine

1.10.   Class, Objects, Methods, Data Types

1.11.   Variables

1.12.   Type Casting

1.13.   Operators

1.14.   Java Comments

1.15.   Object Oriented Programming Concepts

  1. Abstraction

  2. Encapsulation

  3. Polymorphism

  4. Inheritance

1.16.   Java Coding Standards

1.17.   Package – Creating package, naming package

1.18.   Java Keywords

1.19.   Access Specifiers – Public, Private, Protected, Default

1.20. Static Concept – Block, Variable, Method, Class

1.21. Final Concept- Variable, Method, Class

1.22. Scanner Class

1.23. Control Statement – If, If…else, Nested if…else and Switch Case

1.24. Java Break Statement

1.25. Java Continue Statement

1.26. Flow Statement- for, while, do..while

1.27. Constructor- Default, Parameterized

1.28. Inheritance

1.29. Extends, super and this keyword

1.30. Method Overloading, Method Overriding

1.31. Interface

JAVA DEVELOPER

JAVA DEVELOPER

1.49. Java Enum
1.50. Date Concept
1.51. File Handling Concept
1. File Handling Basics
2. Create Folder
3. Create File- .txt. .pdf, .xlsx, .docs, etc.
4. Write File
5. Read File
6. Delete File
1.52. Thread
1. Thread Concept
2. Thread Lifecycle
3. Extends Thread
4. Implement Runnable Interface
5. Thread Priorities
6. Thread Methods
1.53. Multithreading
1.54. Thread Synchronization
1. Synchronization
2. Object Locking
3. Inter Thread Communication
1.55. Volatile Keyword in Java
1.56. JDK 1.8.0 New Features with Hands-on
1. Lambda Expression
2. Functional Interface
3. Default Method in Interface
4. Static Method in Interface
5. Method References
6. Date Time API
7. Stream API in details[All Advanced concepts as per Industry Practices]
8. Collectors
9. For each Loop
10. String Joiner Class
11. Parallel Sort
12. Optional Class
1.57. JDK 11 New Features with Hands-on
1.58. JDK 17 New Features with Hands-on
1.59. Core Java Bank Application
1. Deposit
2. Withdraw
3. Transfer
4. OTP Functionality
1.60. Java Mail API- Realtime Implementation

Programming practices, Concepts & Interview Preparation

JAVA DEVELOPER

2. J2EE

2.1 JDBC

   1. JDBC Introduction
2. JDBC Architecture
3. Database Overview
4. MySQL Database Benefits
5. SQL Queries
6. Create Database
7. Create Table
8. Insert, Update, Delete
9. Truncate
10. SQL Join
- Inner Join
- Left Outer Join
- Right Outer Join
- Full Outer Join

11. Aggregate Function
    1. MIN
    2. MAX
    3. AVG
    4. SUM
    5. COUNT
12. SQL HAVING Clause
13. GROUP BY
14. ORDER BY
15. SQL Aliases
16. SQL LIKE Operator
17. SQL IN
18. SQL NOT IN
19. SQL Between
20. SQL LIMIT
21. SQL Stored Procedures
22. Java Application Using JDBC Connectivity
23. Handling SQL Exceptions
24. DriverManager
25. ResultSet
26. Connection
27. SQL Statement
28. JDBC Connectivity Steps
29. SQL Queries using SQLWorkbench and JDBC CRUD

JAVA DEVELOPER

2.2 Servlet

2.2.1 Servlet Basics
2.2.2 Web Terminology
2.2.3 Need of Server-Side Programming
2.2.4 Servlet Life Cycle
1. init()
2. service–
   doGet()
   doPost()
3. destroy()
2.2.5 Servlet Hello World Application
2.2.6 Deployment Descriptor/Web.xml Structure
2.2.7 Servlets - Annotations
2.2.8 Servlet Directives- include(), forword(), sendRedirictive()
2.2.9 HttpServletRequest, HttpServletResponse in Servlet
2.2.10 Servlet and JDBC Integration
2.2.11 Servlets – MySQL Database Access
2.2.12 Servlets - Page Redirection
2.2.13 Servlet, HTML 5, MySQL-JDBC, Apache Tomcat using Real Time SignUp/SignIn Application
2.2.14 Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom CRUD Application
2.2.15 Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom CRM Project

2.1 JSP

2.1.1 JSP Basics
2.1.2 JSP Overview
2.1.3 Scriplet Tag
2.1.4 Declaration Tag
2.1.5 JSTL- JSP Standard Tag Library
2.1.6 JSP Registration Form JDBC- MySQL, Apache Tomcat
2.1.7 Servlet, JSP, MySQL- JDBC, Apache Tomcat SignUp/SignIn Application
2.1.8 Servlet, JSP, MySQL- JDBC, Apache Tomcat using Custom CRUD Application with JDK Advanced features
2.1.9 Servlet, JSP, MySQL- JDBC, Apache Tomcat Using Advanced Product Management Project
2.1.10 Servlets, JSP Advanced – Debugging
2.1.11 Servlet, JSP, MySQL- JDBC, Tomcat Java 8 Features Live Implementations
2.1.12 Servlet, JSP, MySQL- JDBC, Apache Tomcat Live Project

JAVA DEVELOPER

3. FRAMEWORK

3.1. Hibernate

1. Hibernate Introduction
2. Hibernate Basics
3. Hibernate Architecture
4. ORM Overview
5. Hibernate Caching
6. Hibernate Session
7. Hibernate SessionFactory
8. Hibernate Configuration
9. Hibernate Configuration Offline
10. Hibernate with HBM
11. Hibernate with Annotation
12. Hibernate Validator
13. Hibernate CRUD Application
14. Hibernate Association Mapping
    1. One to One Mapping
    2. One to Many Mapping
    3. Many to One Mapping
    4. Many to Many Mapping
15. Hibernate Aggregation
16. Hibernate Named Queries
17. Hibernate Native SQL
18. HQL- Hibernate QueryLanguage
19. Hibernate HCQL- Criteria Query Language
20. Diff. save(), saveOrUpdate(), update(), persist() and merge()
21. Diff. get() and load()
22. Hibernate vs. JPA
23. Hibernate Application with MySQL DB, Servlet, JSP-User Interface-CRUD
24. Hibernate, MySQL, Servlet, JSP, Apache Tomcat Login Application
25. Hibernate, MySQL, Servlet, JSP, Apache Tomcat Sign Up | Sign In Application

3.2. Spring Framework

1. Spring Framework Introduction
2. Spring Basics
3. Spring Framework Features
4. Inversion of Control
5. Dependency Injection
6. Spring Beans LifeCycle
7.   Beans Scope
     6.1 Singleton
     6.2 Prototype
     6.3 Request
     6.4 Session
     6.5 Global-Session
8. Auto wiring
9. Spring Framework Annotations

3.3. Spring MVC

1. Spring MVC Basics
2. Spring MVC Architecture
3. Spring MVC Workflow
4. Spring MVC Annotations
5. Spring MVC Hello World Application
6. Spring MVC Restful Web Services Basics
7. Spring MVC without Maven
8. Apache Maven Basics
9. Spring MVC with Maven
10. Spring MVC WAR File Creation and Deployment Steps
11. Spring MVC WAR Application Deployment on External Tomcat
12. Spring MVC Application Deployment with Loggers
13. Spring MVC, Hibernate, Mysql, Apache Maven, Apache Tomcat- CRUD Operation
14. Java, Spring MVC, Spring Security, Algorithm, Hibernate, Maven, MySQL Integration Application
       Modules-
       1. Customer SignUp
       2. Customer SignIn
       3. Add Customer Details
       4. View Customer List
       5. Edit Customer Information
       6. Delete Customer
       7. Deploy Application on External Tomcat Server

3.4. Spring Boot

1. Spring Boot Introduction
2. Why Spring Boot
3. Spring Boot Features
4. Creating Project- Spring Initializer
5. Spring Boot Hello World Application
6. Spring Boot Annotations
7. Spring Boot Devtool Dependency- Live Reload Application
8. Spring Boot Actuator
9. Spring Boot Code Structure
10. Spring Boot Tomcat Custom Port Number
11. Spring Boot with Restful Service
12. Spring Boot with Logger
13. Deploy Spring Boot Applications on External Tomcat Server
14. Spring Boot – Common Application Properties (application. properties)
15. Spring Boot with Hibernate Integration
16. Spring Boot with Hibernate CRUD Application
17. Spring Boot with Hibernate, Project Lombok Implementation
18. Spring Boot with Hibernate Java 8 Features Live Implementation
19. Spring Boot with Spring Data Integration
20. Spring Boot with Spring Data JPA CRUD Application
21. Spring Boot with Spring Data JPA Java 8 Features Live Implementation
22. Spring Boot with JDBCTemplate Integration
23. Spring Boot with JDBCTemplate Java 8 Features Live Implementation
24. Spring Boot with XML Payload using Postman API
25. Spring Boot with JSON Payload using PostmanAPI
26. Spring Boot with All HTTP Methods and HTTP Status Code Hands on practices
27. Configuring Swagger UI in Spring Boot Application
28. Spring Boot Global Custom Validations
29. Spring Boot Global Custom Exception Handling
30. Spring Boot Code Debug Practices in Eclipse and IntelliJ Idea
31. Spring Boot Application connectivity with Multiple Databases
32. Spring Boot with Data JPA Ecommerce Application
33. Spring Boot with Data JPA Finance- Banking Application
34. Spring Boot Advanced Research and Development with Latest Release as per Industry Practices

3.5. Spring Security

1. Spring Security Basics
2. Spring Security Features
3. Spring Security Authentication
4. Spring Security Encryption
5. Password Encryption by using Spring Security
6. Spring Security Login Form
7. Spring Security Authentication
8. Spring Security Maven Dependency
9. Spring Security CRUD- Signup and Login Application
10. Spring Security OAuth2 RealTime Implementation
11. Spring Boot End Points Security
12. Spring Boot, Spring Security- Restful Web Services with Advanced Authentication
13. Single Sign-On with Spring Boot & Okta | OAuth 2.0
14. Spring Boot with JWT Token base authentication
15. Spring Boot with Spring Security using BCrypt Algorithm Role base authorization.
16. Spring Security Advanced Research and Development

3.6. Spring Data- JPA

1. Spring Data JPA Basics
2. Spring Boot JPA vs Hibernate
3. Spring Data JPA Architecture
4. Spring Data JPA application. properties file
5. JPA Repository
6. Spring Boot with Data JPA Caching Mechanism in Service Layer
7. CRUD Repository
8. Data JPA Custom methods
9. Spring Boot with Spring Data JPA CRUD using Postman API
10. Spring Boot with Spring Data JPA Transaction Management
11. Spring Boot with Data JPA HRM Application using Swagger

3.7. JUnit- Mockito Framework

1. What is Unit testing
2. What is JUnit
3. JUnit Rules
4. JUnit Arithmetic
5. Mockito Introduction
6. Mockito Annotations
7. Mockito Setup
8. What is Mocking
9. Need for mocking
10. Methods of Mockito
11. Mockito mock() method
12. Mockito when() method
13. Mockito verify() method
14. Mockito doNothing() method
15. Mockito times() method
16. PowerMock
17. Mockito Spy
18. JUnit Mockito Hibernate Application
19. JUnit Mockito JPA Application
20. JUnit Mockito for Ecommerce Application

4. MongoDB

4.1 MongoDB Introduction
4.2 MongoDB Features
4.3 MongoDB Database
4.4 MongoDB Collection
4.5 Spring Boot with MongoDB Integration
4.6 Spring Boot with MongoDB CRUD Application
4.7 Spring Boot with MongoDB API Creation
4.8 Spring Boot with MongoDB Ecommerce Application

5. WEB SERVICES

5.1. SOAP Web Service
5.2. RESTful Web Service

6. MICROSERVICES

6.1. Microservices Introduction

6.2. Microservices Architecture

6.3. Microservices Project Structure

6.4. Design standards

6.5. Spring Boot with Microservices Coding Standards

6.6. Application.properties vs application.yml file

6.7. Build Microservices

6.8. Spring Boot with Hibernate Microservices

6.9. Spring Boot with Data JPA Microservices

6.10. Spring Boot with JDBCTemplate Microservices

6.11. Creating Multiple Services using Spring Boot

6.12. Logger with Microservices

6.13. Micro Services Communication

6.14. RestTemplate

6.15. Feign Client

6.16. VO package creation for Multi Model Application

6.17. Set port number and application name for each service

6.18. Service Registry- Eureka Server

6.19. API Gateway for traverse centralize request

6.20. Hystrix DashBoard

6.21. Zipkin

6.22. Sleuth

6.23. Trace Application- System Health

6.24. Spring cloud API Gateway

6.25. Trace Fallback controller

6.26. Trace Services are up/down using controller service

6.27. Trace Dependent Services

6.28. Trace Controller | Methods and Services how many times used/hit

6.29. Microservices Customer | Product | Payment Order Application

6.30. Spring Boot with Microservices Finance Banking Application

6.31. Spring boot project with Microservice architecture Real time integration of spring cloud eureka, Spring cloud API Gateway, Hystrix, Zipkin & Sleuth

JAVA DEVELOPER