JAVA DEVELOPER SYLLABUS

1. Introduction to Java

- Overview of Java and its history
- Java Development Kit (JDK) vs. Java Runtime Environment (JRE)
- Setting up the development environment (IDE: IntelliJ IDEA, Eclipse)
- Basic syntax and structure of a Java program

2. Core Java Fundamentals

- Data types, variables, and constants
- Control structures (if, switch, loops)
- Methods and parameters
- Arrays and Strings
- Object-Oriented Programming (OOP) concepts ○ Classes and objects ○ Inheritance, polymorphism, encapsulation, and abstraction
- Exception handling (try-catch, throw, throws, finally)

3. Advanced Java Concepts

- Collections Framework (List, Set, Map, etc.)
- Generics
- Lambda expressions and functional interfaces (Java 8+)
- Streams API
- Annotations
- Reflection API

4. Java Development Tools

- Integrated Development Environments (IDEs)

- Build tools (Maven, Gradle)

- Version control (Git)

- Debugging techniques

5. Java Enterprise Edition (Java EE)

- Overview of Java EE and its components

- Servlets and JSP (JavaServer Pages)

- Introduction to JavaServer Faces (JSF)

- RESTful services with JAX-RS

- WebSockets

- Dependency Injection (CDI)

6. Frameworks and Libraries

- Spring Framework ○ Spring Boot for microservices ○ Spring MVC ○ Spring Data

- Hibernate (ORM)

- Apache Maven for project management

7. Databases

- Relational databases (MySQL, PostgreSQL)

- SQL basics and advanced queries

- Using JDBC (Java Database Connectivity)

- Object-Relational Mapping (ORM) with Hibernate

8. Testing and Quality Assurance

- Unit testing with JUnit and Mockito

- Integration testing

- Test-Driven Development (TDD) principles

9. Building and Deploying Applications

- Packaging Java applications (JAR, WAR)

- Deployment strategies (local, cloud)

- Using Docker with Java applications

- CI/CD practices with tools like Jenkins

10. Security Best Practices

- Secure coding practices

- Authentication and authorization mechanisms (JWT, OAuth)

- Data encryption and secure communications

11. Performance Optimization

- Profiling and monitoring applications

- Memory management and Garbage Collection

- Caching strategies

Additional Topics (Optional)

- Real-time applications with WebSockets

- Microservices architecture

- Reactive programming with Project Reactor or RxJava

- Building mobile applications with Java (Android)

◆◆ NEWGEN CORPORATE TRAINING CENTER ◆◆

OFFLINE / ONLINE BATCH

Address: NEWGEN CORPORATE TRAINING CENTER, Bremen Chowk, No. 217, West Avenue, Above

.   Atithi Hotel, Aundh, Pune – 411027

URL: http://www.newgensoftech.com

Mail Id: balkrishna8588@gmail.com

Insta Id: @Newgen_Softech