



Java Basics

- compiling and executing
- Variables and Arrays
- Create packaged classes
- Writing a simple program
- Data types
- Using Eclipse
- Eclipse shortcuts
- Arithmetic Operators
- Boolean Operators
- Logical Operators
- Binary Operators

Control Statements

- Branching Statements
- Iterative Statements
- Break &Continue with enhancements
- While
- For
- Do..While
- Break and Continue Statement

Java Object-Oriented Programming

- Basics of OOPS
- Fundamentals of class & object

- new keyword
- Reference variables
- Member methods of a class
- Constructors
- Finalize method
- Overloading member methods
- Overloading constructors
- Passing and returning objects with methods
- Access Control
- Static Methods
- Static Variables
- Static Block
- Using final keyword
- Unit Testing using Junit-5

Inheritance

- Basics of Inheritance
- Members accessibility in inheritance
- Using super keyword
- The sequence of execution of constructors in inheritance
- Method Overriding
- Dynamic Method Dispatch
- Abstract classes
- Preventing overriding
- Preventing inheritance

Exception Handling

- Fundamentals of Exceptions
- Types of exceptions
- Using try and catch keywords
- Multiple catches
- Nesting of try blocks

- Using throw keyword
- Using throws keyword
- Finally block
- Some predefined exceptions and their usage
- User defined exceptions

Interfaces

- Purpose of Interface
- Defining an interface
- Implementing interfaces
- Interface reference variables
- Interface with variables
- Extending interfaces

Multi Threaded programming

- Basics of threads
- Java threaded model
- Defining threads using Runnable interface
- Defining threads using Thread superclass
- Multiple threads
- Thread Priority values
- Thread Synchronization using synchronized methods
- Thread Synchronization using synchronized blocks

Predefined Libraries

- Using String class
- Using java.lang package
- Working with Data & Time
- Utility framework
- Collection framework
- I/O framework

RDBMS (MySQL)

- Introduction to Database & DBMS

- Data types
- Table, Record, Field
- SQL Queries,
- Database Normalization
- Joins, Sub Queries
- INSERT | UPDATE | DELETE Operations
- DDL Commands
- PL/Sql

Database Programming

- Overview of JDBC API
- Different types of JDBC Drivers
- JDBC URLS
- Driver Manager
- Establishing a connection with the database
- Creating and executing SQL Statements
- Working with CallableStatement

Server-side Programming with Servlets

- Deploying a simple servlet in a Servlet Container (Tomcat)
- Life cycle of a Servlet
- Servlet interface
- ServletRequest Interface
- ServletResponse Interface
- Additional capabilities of HTTPServlet
- Session tracking
- Servlet Programming with JDBC CRUD Operations

JPA-Hibernate (ORM FrameWork)

- Introduction to ORM, JPA
- SessionFactory, Session, Transaction
- Performing CRUD Operations with XML
- Performing CRUD Operations with Annotations

- Different ID Generation Strategies
- Hibernate with Inheritance

Spring

- BeanFactory and application Context
- Container Concepts
- Spring Data JPA Template
- AOP
- MVC

Spring Boot

- Introduction to STS
- Di with STS
- MVC, AOP
- Security, Role-based Authentication, OAuth2, Token based authentication

Spring WebServices

- Introduction to Web Service
- Basics of REST APIS
- Spring REST

Microservices with Spring Boot, Spring Cloud

- Introduction to MicroService architecture
- Advantages with MicroService over Monolithinc architecture
- Develop and Deploy MicroService application in localhost
- Introduction to Service Discovery
- Client side Discovery pattern
- Server side Discovery pattern
- Load Balancing configuration