SYLLABUS

OBJECT ORIENTED PROGRAMMING USING JAVA-SEM 3

Unit I: Introduction to Java

- History and Features of Java
- Java Program Structure
- Java Virtual Machine (JVM)
- Data Types, Variables, and Operators
- Control Statements (if, switch, loops)
- Input and Output (Scanner class, System.out)

Unit II: Classes and Objects

- Defining Classes and Creating Objects
- Constructors and Constructor Overloading
- Method Overloading
- this keyword
- Static Members
- Access Modifiers

Unit III: Inheritance and Polymorphism

- Types of Inheritance (Single, Multilevel, Hierarchical)
- super keyword
- Method Overriding
- Dynamic Method Dispatch
- Final Keyword
- Abstract Classes and Methods
- Interfaces

Unit IV: Exception Handling and Packages

- Errors vs Exceptions
- Try, Catch, Throw, Throws, Finally
- Built-in and User-defined Exceptions
- Creating and Using Packages
- Access Control and Importing Packages
- Introduction to java.lang, java.util, java.io Packages

Unit V: Multithreading and File Handling

- Multithreading Basics
- Creating Threads using Thread and Runnable
- Thread Lifecycle and Methods
- Synchronization
- File Streams – FileInputStream, FileOutputStream
- Reading/Writing Text Files using BufferedReader, BufferedWriter

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🧪 **Lab/Practical Topics**

- Writing simple Java programs using OOP concepts
- Implementing class and object structures
- Programs on inheritance and interfaces
- Exception handling exercises
- Multithreaded applications
- File I/O operations