**Basic Java Syllabus**

**🔹 1. Introduction to Java**

* What is Java?
* Features of Java
* Java vs. Other Programming Languages
* Installing Java (JDK & JRE)
* Setting up Java Development Environment (IDE: IntelliJ, Eclipse, VS Code)
* Writing & Running a Simple Java Program

**🔹 2. Java Basics**

* Java Syntax & Structure
* Data Types & Variables
* Operators in Java (Arithmetic, Relational, Logical, Bitwise)
* Type Casting
* Taking User Input (Scanner class)
* Comments in Java

**🔹 3. Control Flow Statements**

* Conditional Statements (if, else if, switch-case)
* Looping Statements (for, while, do-while)
* Break & Continue Statements

**🔹 4. Arrays & Strings**

* One-Dimensional & Multi-Dimensional Arrays
* Array Operations (Sorting, Searching)
* String Class & Methods
* StringBuffer & StringBuilder

**🔹 5. Functions (Methods) in Java**

* Defining & Calling Methods
* Method Overloading
* Pass by Value & Pass by Reference
* Recursion

**🔹 6. Object-Oriented Programming (OOPs) Concepts**

* Classes & Objects
* Constructors in Java
* this & super Keywords
* Inheritance (Single, Multilevel, Hierarchical)
* Method Overriding
* Polymorphism (Compile-time & Runtime)
* Encapsulation & Abstraction
* Interfaces & Abstract Classes

**🔹 7. Exception Handling**

* Types of Exceptions (Checked & Unchecked)
* Try, Catch, Finally Block
* Throw & Throws Keywords
* Custom Exceptions

**🔹 8. Java Collections Framework**

* Lists (ArrayList, LinkedList)
* Sets (HashSet, TreeSet)
* Maps (HashMap, TreeMap)
* Iterators (Iterator, ListIterator)

**🔹 9. File Handling in Java**

* Reading & Writing Files (FileReader, FileWriter)
* BufferedReader & BufferedWriter
* Serialization & Deserialization

**🔹 10. Multithreading in Java**

* Creating Threads (Thread Class & Runnable Interface)
* Thread Life Cycle
* Synchronization
* Inter-Thread Communication

**🔹 11. Java Input/Output (I/O) & Streams**

* Byte Stream vs. Character Stream
* Buffered Streams
* Object Streams

**🔹 12. Java JDBC (Database Connectivity)**

* Introduction to JDBC
* Connecting Java with MySQL Database
* CRUD Operations with JDBC

**🎯 Final Projects & Hands-on Practice**

* Calculator Program
* Library Management System
* Employee Management System
* Simple Banking Application