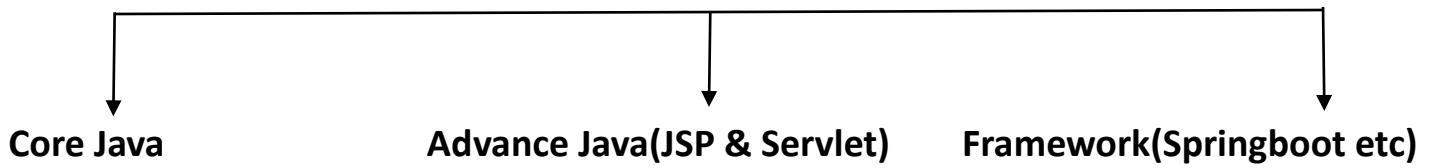


# **JAVA SYLLABUS**

Java Syllabus Divided Into Three Parts :



## **CORE JAVA SYLLABUS**

### **Basics of Java**

- Java - What, Where and Why?
- History and Features of Java
- Internals of Java Program
- Difference between JDK, JRE and JVM
- Internal Details of JVM
- Variable and Data Type
- Type Casting
- Naming Convention
- Array

### **Data types and Operators**

- Primitive Datatypes, Declarations, Ranges
- Variable Names Conventions
- Numeric Literals, Character Literals
- String Literals
- Arrays (One dimensional; two- dimensional)
- Array of Object References
- Accessing arrays, manipulating arrays
- Enumerated Data Types
- Non-Primitive Datatypes
- Defining a class, variable and method in Java
- Method Signature; method calls
- Expressions in Java; introduction to various operators
- Assignment Operator
- Arithmetic Operators
- Relational Operators
- Logical Operators
- Conditional Operators
- Operator Precedence

- Implicit Type Conversions
- Upcasting and downcasting
- Strict typing
- Type conversion

## Control Statements

- If, if..else , ladder if statements
- Loops: for , while , do while
- For-each loop
- Switch statement
- Ternary Operator
- Programs for practice
- Programs based on numbers,array,pattern etc.

## OOPS Concepts

- Introduction
- Class
- Object
- **Polymorphism** → Overloading and Overriding
- **Encapsulation** → How to achieve encapsulation?
- **Abstraction** → Ways to achieve partial and complete abstraction using **abstract**
- **class/interface**
- **Inheritance** → Different types of inheritance
- Why multiple inheritance not supported by java classes?

## PACKAGES

- Introduction to packages
- User Defined Packages
- Access Modifiers
- Concept of jar files
- creating jar file

## String Handling

- String: What and Why?
- ways to create string objects
- why string is immutable?
- **== vs equals**
- string buffer, string builder and their difference
- split method, String tokenizer

- various methods of String like length, substring, concat, toCharArray, toUpperCase, toLowerCase, etc
- Immutable String
- String Comparison
- String Concatenation
- Substring
- Methods of String class
- Creating Immutable class
- toString method
- StringTokenizer class

### **Exception Handling**

- Exception Handling : What and Why?
- try and catch block
- Multiple catch block
- Nested try
- finally block
- throw keyword
- Exception Propagation
- throws keyword
- Exception Handling with Method
- Custom Exception

### **Input and output in Java**

- Reading from file
- Writing to File
- Reading Image file
- Writing to Image file
- Serialization basics
- Transient keyword

### **Collection Framework in Java**

- Lists like ArrayList, LinkedList, Vector and difference between them
- Sets like HashSet, LinkedHashSet, TreeSet and differences between them
- Maps like HashMap, LinkedHashMap, TreeMap and differences between them
- List vs Set vs Map
- Collection vs Collections
- Hashtable and hashing technique
- hashCode and equals contract
- using different Collection, storing elements in them, fetching elements, sorting and
- searching elements

## Generics in Java

- advantages of using generics
- How to use generics in java program?

## Serialization

- Object Serialization
- Serializable Interface
- Serialization API
- ObjectInputStream and ObjectOutputStream
- Transient Fields
- readObject and writeObject

## Inner Classes

- Inner Classes
- Member Classes
- Local Classes
- Anonymous Classes
- Static Nested Classes

## Threads in Java

- Non-Threaded Applications
- Threaded Applications
- Process based multitasking Vs Thread based multitasking
- Thread API in Java
- Creating Threads
- States of a Thread

## Important Keywords in Java

- **super,**
- **this,**
- **final,**
- **finally,**
- **finalize,**
- **static**