What Is Java

Java is a high-level, object-oriented, platform-independent programming language developed by Sun Microsystems in 1995.

It is designed with the philosophy of “Write Once, Run Anywhere” (WORA) — meaning code written in Java can run on any device that has a Java Virtual Machine (JVM).

Java is a powerful and versatile language used to develop a wide range of applications — from standalone and web to mobile, cloud, IoT, and enterprise-level systems.

Key Features

1. Object-Oriented

Everything in Java is treated as an object — helping in code reusability, flexibility, and modularity.

2. Platform Independent

Java code is compiled into bytecode, which runs on any system which has JVM in it, regardless of OS.

3. Simple and Secure

Java removes complex features (like pointers, operator overloading) and provides strong memory management & security mechanisms.

4. Robust

Strong error-handling, garbage collection, and memory management make it reliable.

5. Multithreaded

Supports multiple threads (tasks) running simultaneously.

6. Portable

Same Java program can be executed on different platforms without modification.

7. High Performance

Java provides high performance as the Just-In-Time (JIT) compiler converts bytecode into machine code at runtime, allowing programs to run faster.

8. Distributed

Supports networking and distributed computing (RMI, EJB, Web Services).

Applications of Java

- Used to develop standalone (desktop) applications like editors and media players.
- Builds web applications using Servlets, JSP, Spring, and Hibernate.
- Core language for Android mobile app development.
- Powers enterprise applications with Java EE / Jakarta EE.
- Used for cloud-based applications on AWS, Azure, and GCP.
- Enables IoT device development due to its portability and security.
- Suitable for scientific and research applications.
- Used in Big Data technologies like Hadoop and Spark.