

## Softwares that helps to run Java

Java is a powerful programming language used to build a wide range of applications, from mobile apps to complex enterprise software. It's known for being platform-independent (works on different systems) and easy to learn, making it a popular choice for developers.

To run Java programs, you typically need the following:

- JDK (Java Development Kit): Essential for compiling and running Java code.
- JRE (Java Runtime Environment): Provides the libraries and JVM (Java Virtual Machine) to run Java applications.
- IDE (Integrated Development Environment):
  - Eclipse
  - NetBeans
  - IntelliJ IDEA
  - BlueJ (for beginners)
  - VS Code (with Java plugins)
- Command Line Tools:
  - Terminal or Command Prompt (using javac and java commands)

## JDK and JRE

### **JDK (Java Development Kit):**

- A software development environment used for developing Java applications.
- Includes:
  - Compiler (javac)
  - JRE
  - Debugger, JavaDoc, and other development tools.

### **JRE (Java Runtime Environment):**

- A package of software that allows Java programs to run.
- Includes:
  - JVM (Java Virtual Machine)
  - Core libraries
- Does NOT include the compiler or development tools.

## Eclipse IDE:

Eclipse IDE is a popular open-source integrated development environment used primarily for Java development.

Features:

- Code editor with syntax highlighting
- Project management tools
- Built-in compiler and debugger
- GUI design tools (via plugins)
- Integration with version control (like Git)

## How to run java program in Eclipse/NetBeans IDE:

In Eclipse IDE:

1. Install JDK and Eclipse IDE (Eclipse requires JDK).
2. Launch Eclipse and select a workspace directory (this is where your projects are saved).
3. Create a new Java project:
  - File → New → Java Project
  - Give it a name and click Finish.
4. Create a class:
  - Right-click on the src folder → New → Class
  - Name it (e.g., Main), check public static void main(String[] args) box.
5. Write your code inside the class.
6. Run the program:
  - Click the green Run button or right-click the class → Run As → Java Application.

In NetBeans IDE:

1. Install NetBeans IDE (ensure JDK is installed).
2. Install JDK and NetBeans.
3. Open NetBeans and go to:  
File → New Project → Choose Java → Java Application.
4. Give your project a name.
5. NetBeans auto-generates a Main class with a main() method.
6. Add your code inside main() or other methods.
7. Press F6 or click the green play button to run.