

# WEEK 2

## 1. What are the softwares that help to run Java programs?

To write, compile, and execute Java programs, you need:

- **Java Development Kit (JDK)** – Contains all tools for developing and running Java programs.
- **Java Runtime Environment (JRE)** – Runs Java applications.
- **Text Editor or IDE** – For writing Java code. Examples:
  - Simple: Notepad, Notepad++
  - Advanced IDEs: Eclipse, NetBeans, IntelliJ IDEA
- **Java-enabled Browser** (optional) – For running Java applets (older technology, rarely used now).
- **Command Line (Terminal/Command Prompt)** – To compile and run Java code manually.

## 2. What is JDK and JRE?

### • **JDK (Java Development Kit)**

- A complete package for Java developers.
- Contains:
  - Compiler (`javac`)
  - JRE
  - Development tools (debugger, documentation generator, etc.)
- Needed when you **write and compile** Java programs.

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

- A package that contains libraries, Java Virtual Machine (JVM), and other components required to **run** Java applications.
- Does **not** include compiler or development tools.
- Needed when you **only run** Java programs.

## 3. What is Eclipse IDE?

- **Eclipse IDE** is a free, open-source **Integrated Development Environment** used for Java and other programming languages.
- Features:
  - Code editor with syntax highlighting
  - Auto-completion
  - Integrated debugger
  - Project management
  - Plugin support for additional languages/tools
- Makes Java programming easier by automating compilation and execution.

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## 4. How to run a Java program in Eclipse/NetBeans IDE?

In Eclipse:

1. **Install JDK** and configure it in Eclipse.
2. **Open Eclipse** and create a **New Java Project**.
3. Inside the project, create a **New Java Class**.
4. Write your Java code .
5. Click **Run** (green play button) or press **Ctrl + F11** to execute.

In NetBeans:

1. **Install JDK** and configure NetBeans to use it.
2. **Open NetBeans** and create a **New Project** → Choose **Java Application**.
3. Write your Java code in the main file.
4. Click the **Run** button (green play icon) or press **F6** to execute.