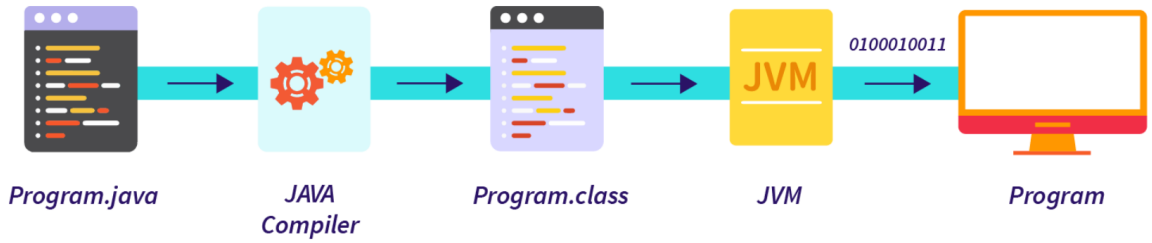

Writing Code:

- Start by writing your Java code using a text editor or an Integrated Development Environment `(IDE)`.

Compilation:

- Save your Java code in a file with a `.java` extension. This file is called the source file.
- Use the Java compiler `(javac)` to translate your source code into an intermediate form called `bytecode`.
- This **bytecode is not machine-specific**, making Java a platform-independent language.

Bytecode Generation:

- The Java compiler generates a file with a `.class` extension containing the bytecode for each class in your program.

Java Virtual Machine (JVM):

- The JVM is a virtual machine that executes Java bytecode.
- Run your Java program by providing the `.class` file to the `Java interpreter` **(java command)**.

Loading:

- The JVM loads the bytecode of your program into memory.

Bytecode Verification:

- The JVM checks the bytecode for any violations of Java's security restrictions.

Execution:

- The JVM starts executing the bytecode line by line.
- It translates the bytecode into machine-specific instructions using `Just-In-Time` **(JIT)** compilation for better performance.

Runtime:

- Your program runs and performs the tasks specified in your code.

Output:

- If your program includes output statements `(e.g., System.out.println())`, the results are displayed in the `console`.

Termination:

- Your program finishes its execution, and the JVM `releases` the allocated memory.