

First Java Program: "Hello World"

Introduction

The **Hello World** program is the most basic program that every beginner in Java (or any programming language) writes. It serves as the first step toward understanding how a program works and how to set up your development environment. In Java, it is used to demonstrate the process of writing, compiling, and running a Java program.

Understanding the Structure of the Program

java

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```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello, World!");  
    }  
}
```

Let's break this down:

1. **Class Declaration:**

```
public class HelloWorld {
```

- In Java, every application must have at least one class. Here, the class is named HelloWorld.
- The keyword `public` means this class is accessible to other classes.
- The class declaration begins with `class` and must end with a closing curly brace `}`.

2. **Main Method:**

```
public static void main(String[] args) {
```

- The main method is the entry point of any Java program. This is where the program begins execution.
- `public`: This method can be accessed from outside the class.
- `static`: The method belongs to the class, not an instance of the class.
- `void`: This method does not return any value.
- `String[] args`: This parameter is used to receive command-line arguments.

3. **System.out.println():**

```
System.out.println("Hello, World!");
```

- System is a built-in class that contains the out object, which is used to output data to the console.
 - println: It prints the string "Hello, World!" to the console followed by a newline. This is where the program displays its output.
4. **Closing Braces:**
The closing curly braces } mark the end of the class and method.
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Steps to Write and Run the "Hello World" Program

1. **Install JDK:** Make sure you have the Java Development Kit (JDK) installed on your computer. This includes both the Java Runtime Environment (JRE) and the compiler to translate your code into executable format.
2. **Write the Program:**
 - Open a text editor (e.g., Notepad, VS Code) and write the Java code shown above.
 - Save the file with a .java extension, for example, HelloWorld.java.
3. **Compile the Program:**
 - Open the command prompt (or terminal).
 - Navigate to the directory where your Java file is saved.
 - Run the following command to compile the code:

bash

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javac HelloWorld.java

- If there are no errors in your code, it will create a file named HelloWorld.class, which is the bytecode version of your Java program.

4. **Run the Program:**
- To execute the compiled program, run:

bash

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java HelloWorld

- The output should display:

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Hello, World!

Explanation of Output

When you run the program, the string "Hello, World!" is displayed on the console. This confirms that the program is correctly compiled and executed.

Why "Hello World" Is Important for Beginners

1. **Understanding the Development Environment:** It helps you set up your Java development environment and learn how to run a basic program.
 2. **First Encounter with Java Syntax:** It introduces you to Java syntax, including classes, methods, and the `System.out.println()` function.
 3. **Confidence Boost:** Seeing your first program run successfully is a confidence booster and encourages further learning.
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Conclusion

The **Hello World** program is the starting point for Java programming. It teaches you the basics of the Java language and provides a foundation for learning more complex topics in Java. By writing and running this program, you confirm that your development setup is working correctly and you can proceed to more advanced concepts.

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