Java Programming I

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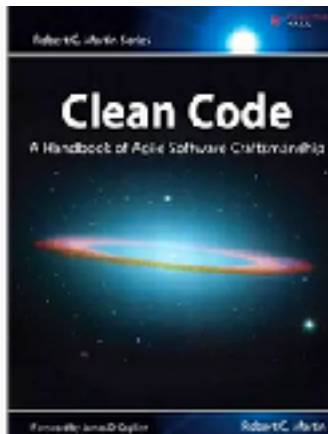
Intro

Recommended reading

Java: A Beginner's Guide, Sixth Edition

Herbert Schildt

Clean Code: A Handbook of Agile Software Craftsmanship

Robert C. Martin

Design Patterns: Elements of Reusable Object-Oriented Software

Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides, Grady Booch

Class Structure

How will we work?

- Hands on Exercises

- Working in teams

- Code reviews

- Quizzes

- Final Project

Grading

Make it as close as possible to a real-life experience

- Class Participation 10%
- Project 60%
- Final exam 30%

Computer languages

- Interpreted vs Precompiled vs Native

- Static typed vs Dynamic typed

- Strongly typed vs weak typed

- Brackets vs Indentation

- Spaces vs Tabs

So what's so great about Java?

Portable	Write once run everywhere
Secure	Memory management and isolation
Object-oriented	The current icon of OOP
Robust	strongly typed, good exception management
Multithreaded	Good for multithread and distributed environments
Fast	One of the fastest languages around
Popular	2nd most popular language on github

Who is using Java now?

- Google

- Spring Framework
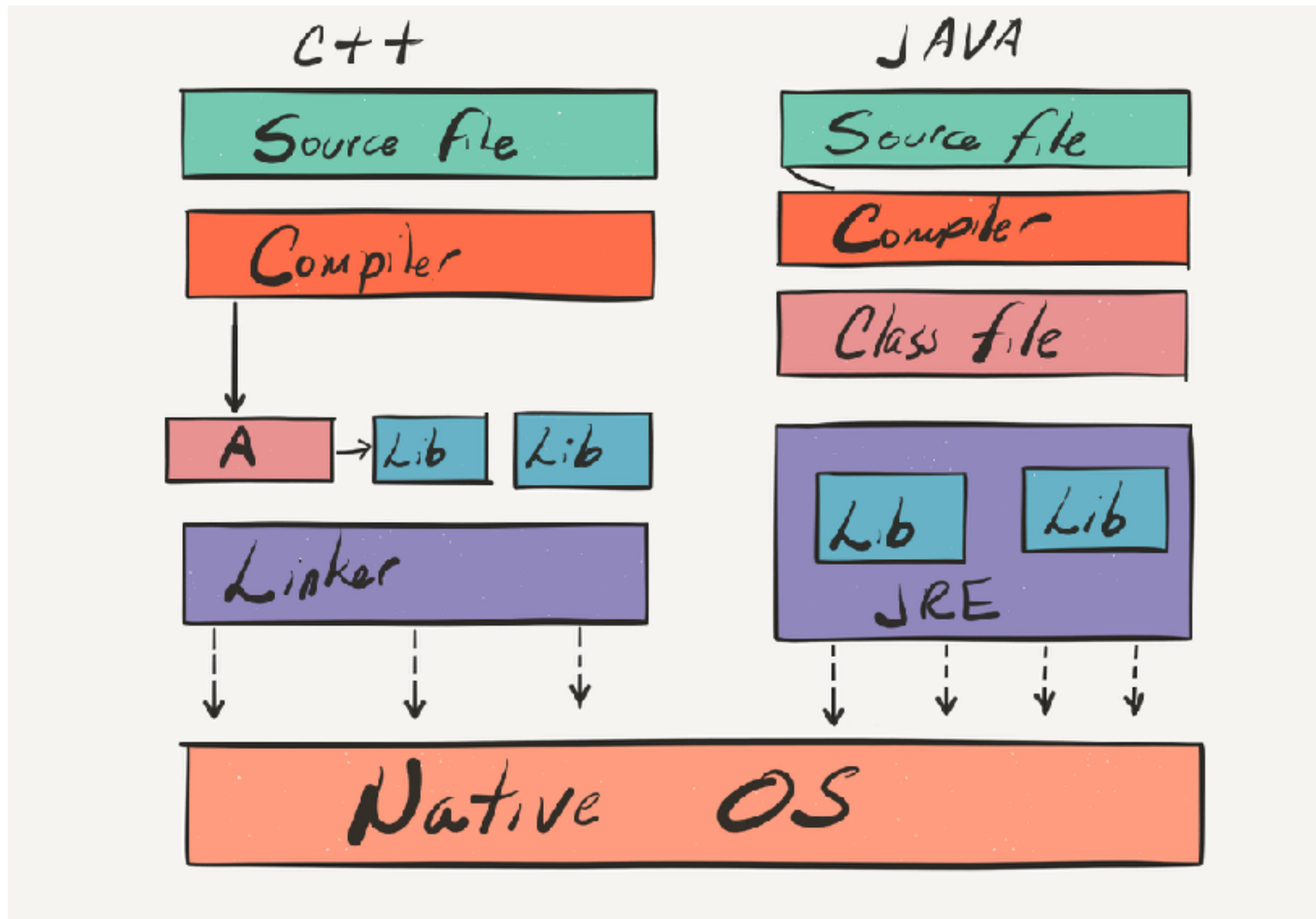
- Hadoop (Google FS clone)

- Android Apps

Disadvantages of Java

- Slow development process

- Deployments are complex

- Code can be "long and ugly"

The flow of a Java Program
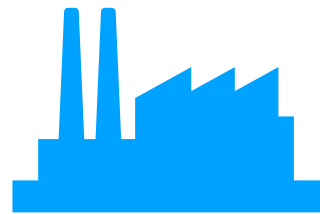
Java terminology

- JRE - The runtime (Virtual Machine) that interprets precompiled code and translates it to native code.

- Bytecode - A precompiled code that the virtual machine understands that is translated to native instructions

- Package - A group of similar classes organized by folders

- JAR - Java Archive: A file that contains one or more packages for distribution
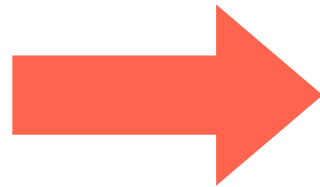
Hello World

```java
public class HelloWorld {
    public static void main(String[] args) {
        // Prints "Hello, World" to the terminal window.
        System.out.println("Hello, World");
    }
}
```
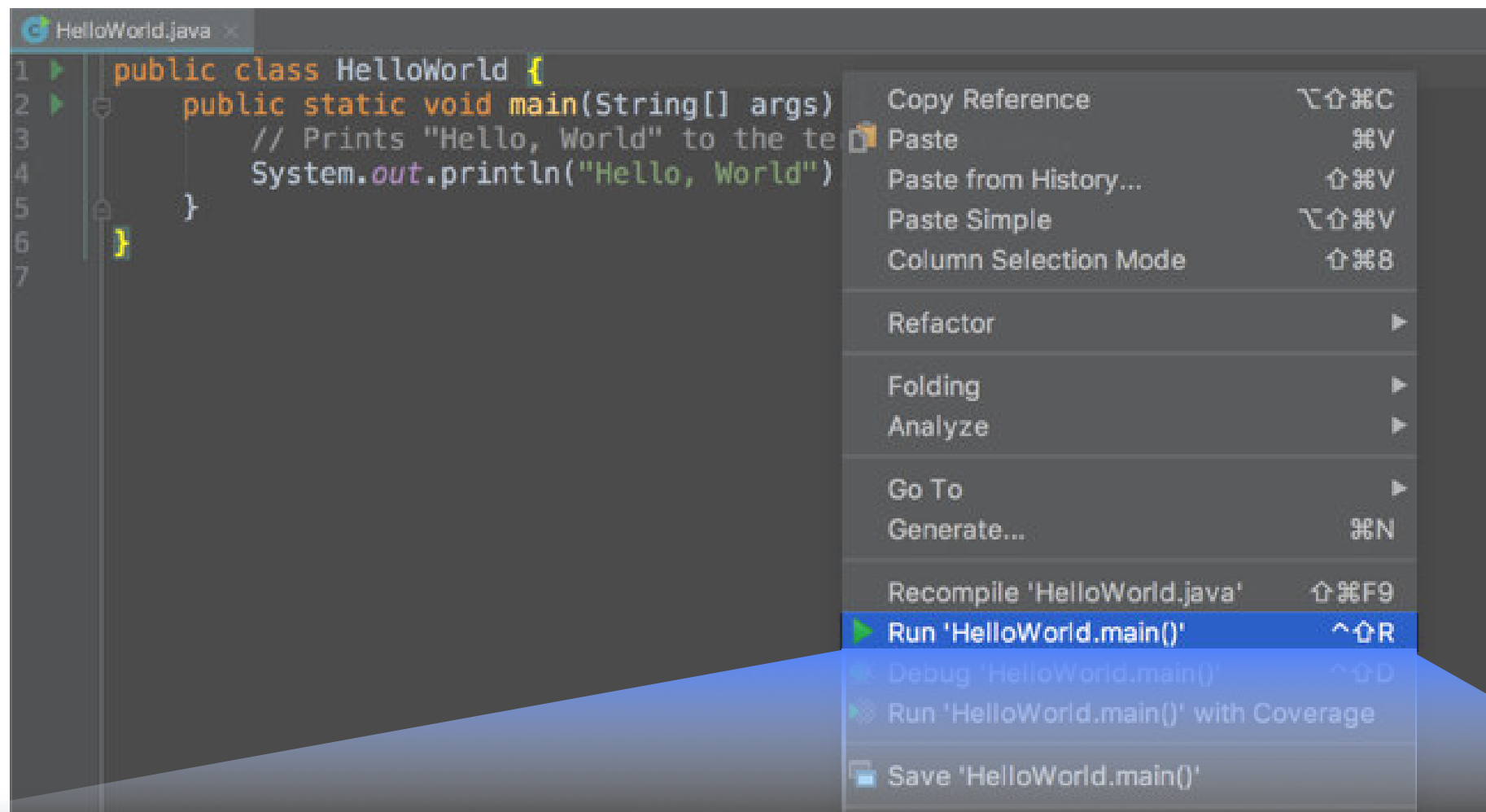
Running it

Under the hood

Build → **Run**

```
[moreno (17:19) ~$ javac HelloWorld.java
[moreno (17:19) ~$ java HelloWorld
Hello, World
moreno (17:19) ~$ 
```
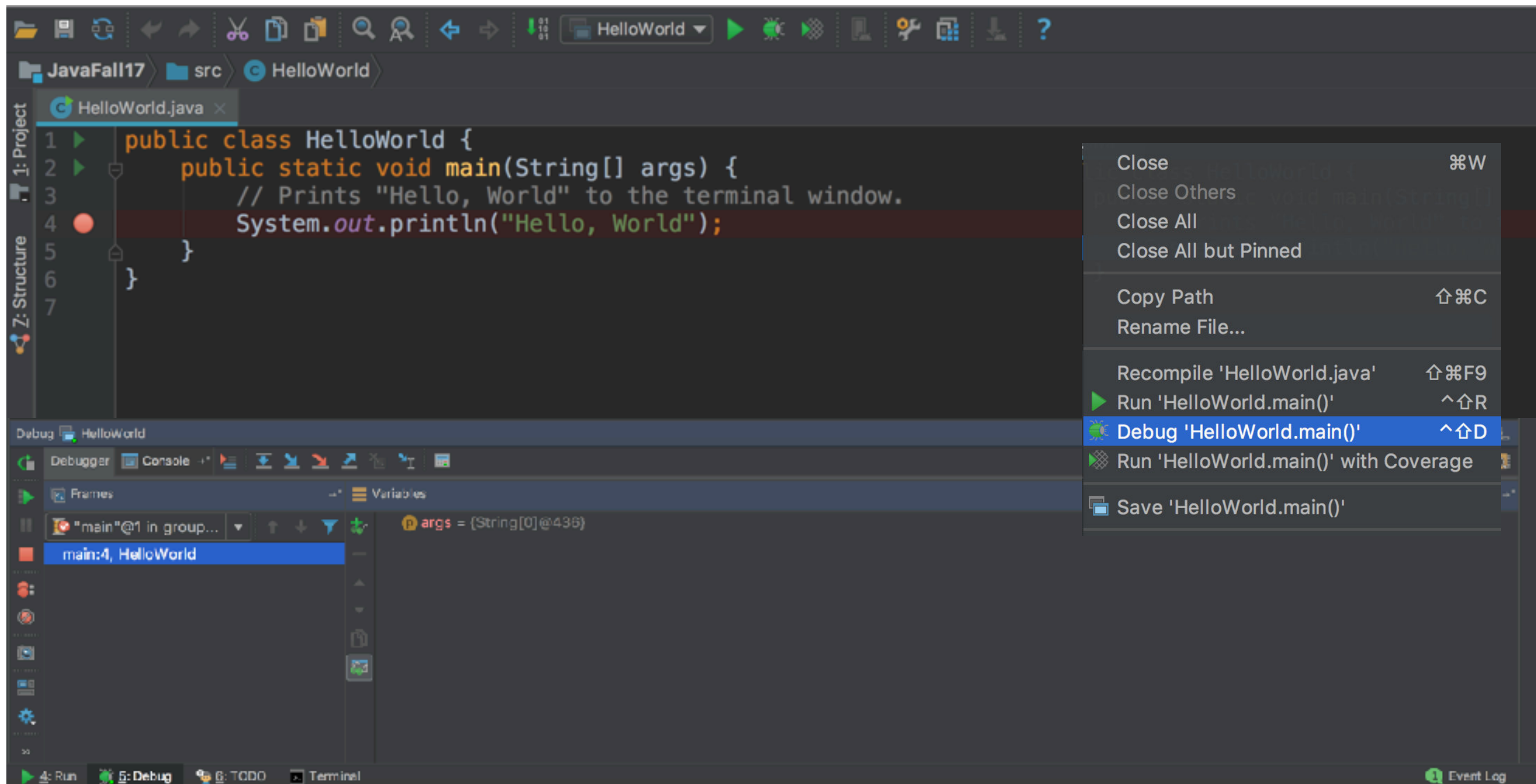
Running it

Debugging it

Hello World ++

Classroom exercise

Learn how to

- Create new file

- Use IDE

- Expand code

Troubleshooting

- Handling compiler errors

- Handling runtime errors

- Debugging

```java
public class HelloWorldPlusPlus{

    public static void main(String[] args) {
        String name = args[0];
        System.out.print("Hello, " + name);
        System.out.println(". How are you?");
    }
}
```