

## 1. Reading Assignment: A Short History of Java

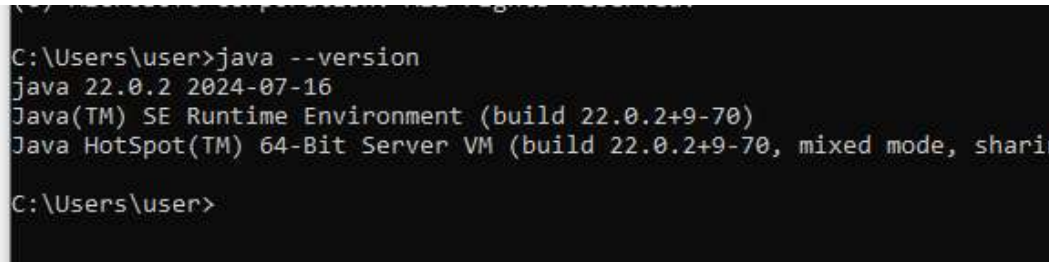
- **Task:** Read about the history and development of Java.
- **Link:** <http://sunsite.uakom.sk/sunworldonline/swol-07-1995/swol-07-java.html>

## 2. Reading Assignment: Java Language Features

- **Task:** Learn about the main features of Java.
- **Link:** <https://javaalmanac.io/features/>

## 3. Reading Assignment: Which Version of JDK Should I Use?

- **Task:** Find out which JDK version is right for you.



```
C:\Users\user>java --version
java 22.0.2 2024-07-16
Java(TM) SE Runtime Environment (build 22.0.2+9-70)
Java HotSpot(TM) 64-Bit Server VM (build 22.0.2+9-70, mixed mode, sharing)
C:\Users\user>
```

- **Link:** <https://whichjdk.com/>

## 4. Reading Assignment: JDK Installation Directory Structure

- **Task:** Understand the folder structure and files in the JDK installation.
- **Link:** <https://docs.oracle.com/javase/8/docs/technotes/tools/windows/jdkfiles.html>

## 5. Reading Assignment: About Java Technology

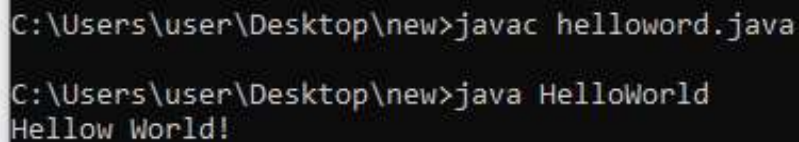
- **Task:** Read about the basics of Java technology and its components.
- **Link:** <https://docs.oracle.com/javase/tutorial/getStarted/intro/definition.html>

## 6. Coding Assignments

- **Hello World Program:** Write a Java program that prints "Hello World!!" to the console.



```
1 class HelloWorld {
2     public static void main(String[] args) {
3         System.out.println(x:"Hellow World!");
4     }
5 }
```



```
C:\Users\user\Desktop\new>javac helloworld.java
C:\Users\user\Desktop\new>java HelloWorld
Hellow World!
```

- 
- Every line of code that runs in Java must be inside a class.
- class name should always start with an uppercase first letter.
- In our example, we named the class Main.
- Java is case-sensitive: "MyClass" and "myclass" has different meaning.
- The name of the java file must match the class name.
- **System** is a built-in Java class that contains useful members, such as out, which is short for "output".
- The **println()** method, short for "print line", is used to print a value to the screen (or a file).
- Don't worry too much about how System, out and println() works. Just know that you need them together to print stuff to the screen.
- You should also note that each code statement must end with a semicolon (;).
- **Compile with Verbose Option:** Compile your Java file using the `-verbose` option with `javac`. Check the output.

```
C:\Windows\System32\cmd.exe  
[ parsing started RegularFileObject[helloworld.java]]  
[ parsing completed 30ms]  
[ search path for source files: . ]  
[ search path for class files: C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\rsrcources.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\bin\jar.C;\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\sunrsasign.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\charsets.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext-access-bridge-64.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\cldrdata.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\dnsns.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\access.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\nashorn.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\suncsc.provider.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\sunpkcs11.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\sunec.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\sumscapi.jar;C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\jre\lib\ext\sumskcs11.jar] [ META-INF/sym/rt.jar/java/lang/Object.class ]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/java/lang/String.class)]]  
[ checking HelloWorld ]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Serrializable.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/AutoCloseable.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Byte.class)]]  
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[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Lang.Long.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Lang.Float.class)]]  
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[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Doube.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Boolean.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Void.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/System.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/PrintStream.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Appendable.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Closeable.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/FilerOutputStream.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Outputstream.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Flushable.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/Comparable.class)]]  
[ loading ZipFileIndexFileObject[C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\lib\ct.sym(META-INF/sym/rt.jar/javaiio/CharSequence.class)]]  
[ wrote RegularFileObject[Helloworld.class)]  
[ total 497ms]
```

C:\Users\User\Desktop>

- **Inspect Bytecode:** Use the `javap` tool to examine the bytecode of the compiled `.class` file. Observe the output.

```
C:\Users\user\Desktop\new>javap -c Test
Compiled from "first.java"
class Test {
    Test();
        Code:
            0: aload_0
            1: invokespecial #1                  // Method java/lang/Object."<init>":()V
            4: return

    public static void main(java.lang.String[]);
        Code:
            0: getstatic     #7                  // Field java/lang/System.out:Ljava/io/PrintStream;
            3: ldc           #13                 // String Hello World.
            5: invokevirtual #15               // Method java/io/PrintStream.println:(Ljava/lang/String;)V
            8: return
}
```

## 7. Reading Assignment: The JVM Architecture Explained

- **Task:** Learn about how the Java Virtual Machine (JVM) works.
- **Link:** <https://dzone.com/articles/jvm-architecture-explained>

#### **8. Reading Assignment: The Java Language Environment: Contents**

- **Task:** Explore the content and features of the Java language environment.
- **Link:** <https://www.oracle.com/java/technologies/language-environment.html>