

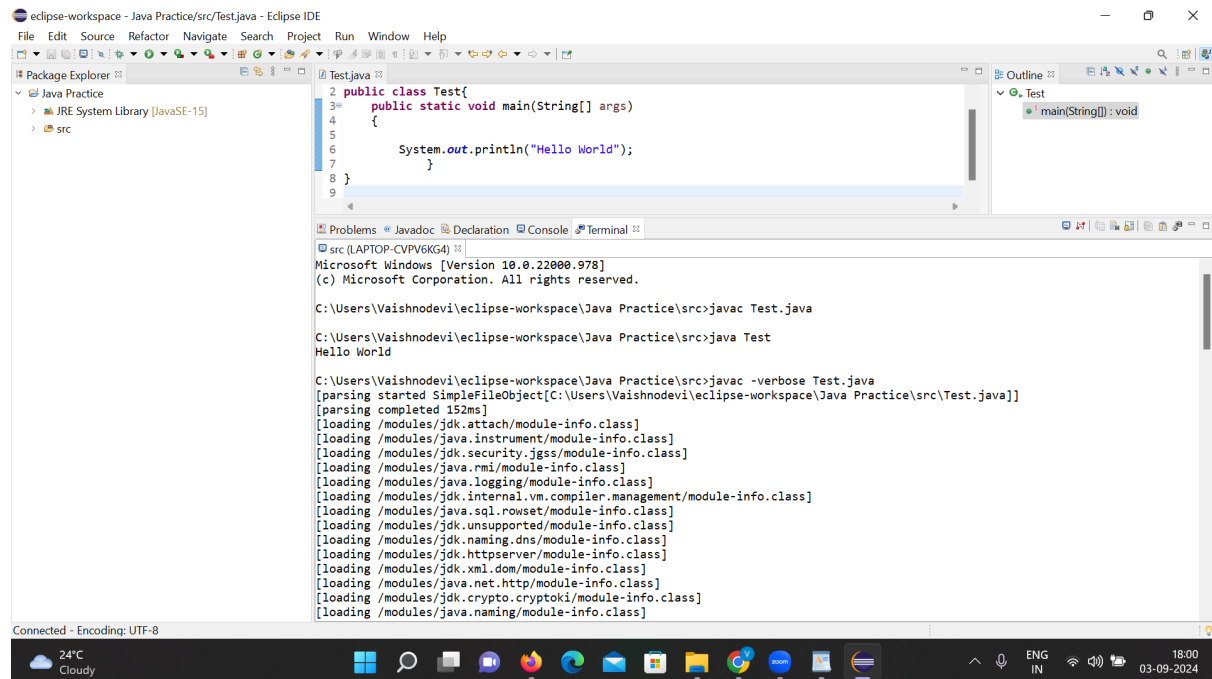
# Assignment 1

## Coding Assignments

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

Compile with Verbose Option: Compile your Java file using the -verbose option with javac.

Check the output.



The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'Java Practice' with a source folder 'src'. The main editor displays the file 'Test.java' with the following code:

```
1 public class Test{
2     public static void main(String[] args)
3     {
4
5         System.out.println("Hello World");
6     }
7 }
8
9
```

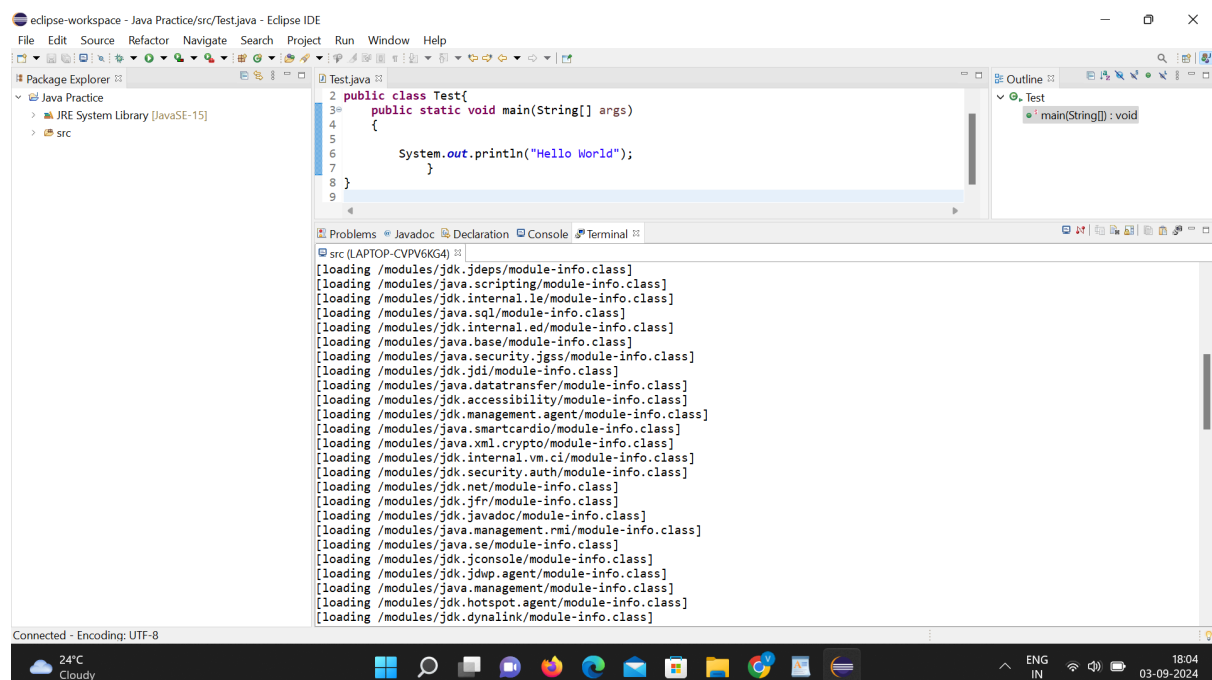
The Outline view on the right shows the class 'Test' and the method 'main(String[]): void'. The Console view at the bottom shows the output of the compilation and execution:

```
src (LAPTOP-CVPV6KG4)
Microsoft Windows [Version 10.0.22000.978]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Vaishnodevi\workspace\Java Practice>javac Test.java

C:\Users\Vaishnodevi\workspace\Java Practice>java Test
Hello World

C:\Users\Vaishnodevi\workspace\Java Practice>javac -verbose Test.java
[parsing started SimpleFileObject[C:\Users\Vaishnodevi\workspace\Java Practice\src\Test.java]]
[parsing completed 152ms]
[loading /modules/jdk.attach/module-info.class]
[loading /modules/java.instrument/module-info.class]
[loading /modules/jdk.security.jgss/module-info.class]
[loading /modules/java.rmi/module-info.class]
[loading /modules/java.logging/module-info.class]
[loading /modules/jdk.internal.vm.compiler.management/module-info.class]
[loading /modules/java.sql.rowset/module-info.class]
[loading /modules/jdk.unsupported/module-info.class]
[loading /modules/jdk.naming.dns/module-info.class]
[loading /modules/jdk.httpserver/module-info.class]
[loading /modules/jdk.xml.dom/module-info.class]
[loading /modules/java.net.http/module-info.class]
[loading /modules/jdk.crypto.cryptoki/module-info.class]
[loading /modules/java.naming/module-info.class]
```



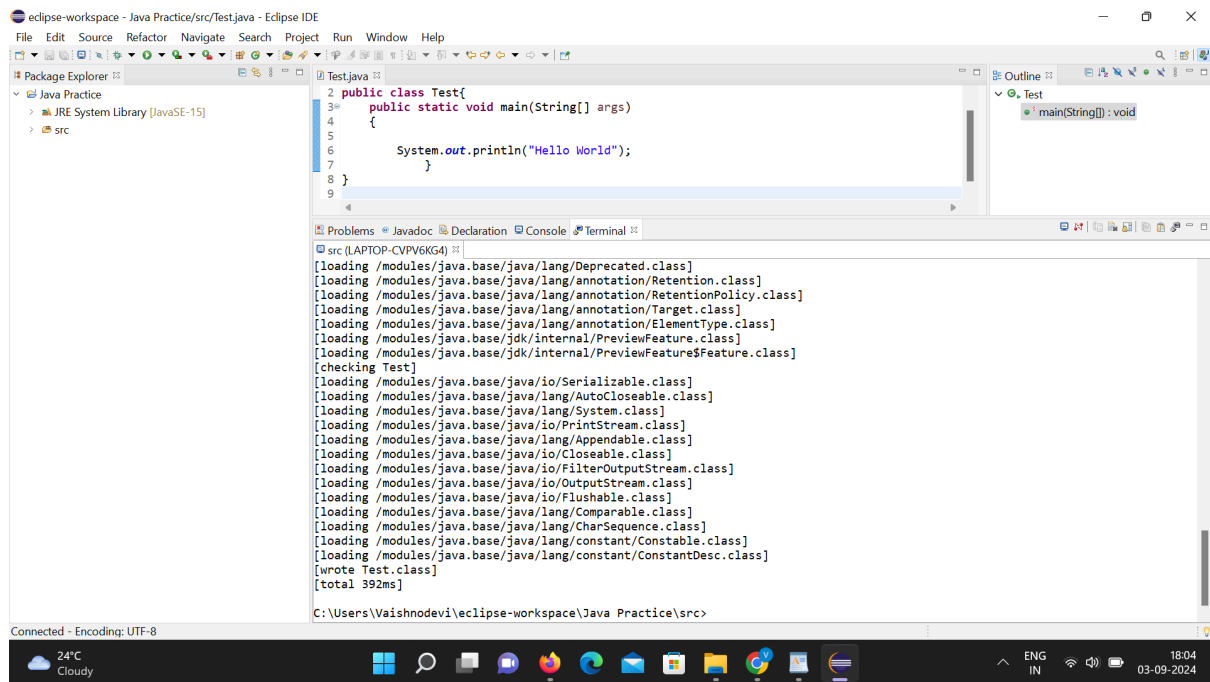
The screenshot shows the Eclipse IDE interface, similar to the one above. The Package Explorer and main editor are the same. The Console view shows the output of the compilation and execution, including a longer list of module-info.class files loaded during the compilation process:

```
src (LAPTOP-CVPV6KG4)
[loading /modules/jdk.jdeps/module-info.class]
[loading /modules/java.scripting/module-info.class]
[loading /modules/jdk.internal.le/module-info.class]
[loading /modules/java.sql/module-info.class]
[loading /modules/jdk.internal.ed/module-info.class]
[loading /modules/java.base/module-info.class]
[loading /modules/java.security.jgss/module-info.class]
[loading /modules/jdk.jdi/module-info.class]
[loading /modules/java.datatransfer/module-info.class]
[loading /modules/jdk.accessibility/module-info.class]
[loading /modules/jdk.management.agent/module-info.class]
[loading /modules/java.smartcardio/module-info.class]
[loading /modules/java.xml.crypto/module-info.class]
[loading /modules/jdk.internal.vm.ci/module-info.class]
[loading /modules/jdk.security.auth/module-info.class]
[loading /modules/jdk.net/module-info.class]
[loading /modules/jdk.jfr/module-info.class]
[loading /modules/jdk.javadoc/module-info.class]
[loading /modules/java.management.rmi/module-info.class]
[loading /modules/java.se/module-info.class]
[loading /modules/jdk.jconsole/module-info.class]
[loading /modules/jdk.jdwp.agent/module-info.class]
[loading /modules/java.management/module-info.class]
[loading /modules/jdk.hotspot.agent/module-info.class]
[loading /modules/jdk.dynalink/module-info.class]
```

```
eclipse-workspace - Java Practice/src/Test.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
  Java Practice
    JRE System Library [JavaSE-15]
    src
Test.java
2 public class Test{
3     public static void main(String[] args)
4     {
5
6         System.out.println("Hello World");
7     }
8 }
9
Problems Javadoc Declaration Console Terminal
src (LAPTOP-CVP6K6G4)
[loading /modules/jdk.management.jfr/module-info.class]
[loading /modules/java.xml/module-info.class]
[loading /modules/jdk.internal.vm.compiler/module-info.class]
[loading /modules/jdk.internal.jvmtstat/module-info.class]
[loading /modules/jdk.compiler/module-info.class]
[loading /modules/jdk.localedata/module-info.class]
[loading /modules/jdk.jlink/module-info.class]
[loading /modules/java.transaction.xa/module-info.class]
[loading /modules/jdk.jstatd/module-info.class]
[loading /modules/jdk.incubator.foreign/module-info.class]
[loading /modules/jdk.jshell/module-info.class]
[loading /modules/java.prefs/module-info.class]
[loading /modules/jdk.zipfs/module-info.class]
[loading /modules/jdk.internal.opt/module-info.class]
[loading /modules/jdk.charsets/module-info.class]
[loading /modules/jdk.crypto.ec/module-info.class]
[loading /modules/java.desktop/module-info.class]
[loading /modules/jdk.naming.rmi/module-info.class]
[loading /modules/jdk.sctp/module-info.class]
[loading /modules/jdk.aot/module-info.class]
[loading /modules/jdk.jcmd/module-info.class]
[loading /modules/jdk.management/module-info.class]
[loading /modules/java.compiler/module-info.class]
[loading /modules/jdk.unsupported.desktop/module-info.class]
[loading /modules/jdk.jartool/module-info.class]
Connected - Encoding: UTF-8
24°C Cloudy
ENG IN 18:04 03-09-2024
```

```
eclipse-workspace - Java Practice/src/Test.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
  Java Practice
    JRE System Library [JavaSE-15]
    src
Test.java
2 public class Test{
3     public static void main(String[] args)
4     {
5
6         System.out.println("Hello World");
7     }
8 }
9
Problems Javadoc Declaration Console Terminal
src (LAPTOP-CVP6K6G4)
[loading /modules/java.security.sasl/module-info.class]
[loading /modules/jdk.jsobject/module-info.class]
[loading /modules/jdk.crypto.mscapi/module-info.class]
[loading /modules/jdk.nio.mapmode/module-info.class]
[loading /modules/jdk.editpad/module-info.class]
[loading /modules/jdk.incubator.jpackage/module-info.class]
[search path for class files: C:\Program Files\Java\jdk-15.0.2\lib\modules,.]
[loading /modules/java.base/java/lang/Object.class]
[loading /modules/java.base/java/lang/String.class]
[loading /modules/java.base/java/lang/Deprecated.class]
[loading /modules/java.base/java/lang/annotation/Retention.class]
[loading /modules/java.base/java/lang/annotation/RetentionPolicy.class]
[loading /modules/java.base/java/lang/annotation/Target.class]
[loading /modules/java.base/java/lang/annotation/ElementType.class]
[loading /modules/java.base/jdk/internal/PreviewFeature.class]
[loading /modules/java.base/jdk/internal/PreviewFeaturesFeature.class]
[checking Test]
[loading /modules/java.base/java/io/Serializable.class]
[loading /modules/java.base/java/lang/AutoCloseable.class]
[loading /modules/java.base/java/lang/System.class]
[loading /modules/java.base/java/io/PrintStream.class]
[loading /modules/java.base/java/lang/Appendable.class]
[loading /modules/java.base/java/io/Closeable.class]
[loading /modules/java.base/java/io/FilterOutputStream.class]
Connected - Encoding: UTF-8
24°C Cloudy
ENG IN 18:04 03-09-2024
```

-verbose option shows the whole details of compilation process. Such as which source file is being read , which classes and libraries are loaded. At last it shows the compiled .class file.



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

