Q6] Working with java.lang.Float

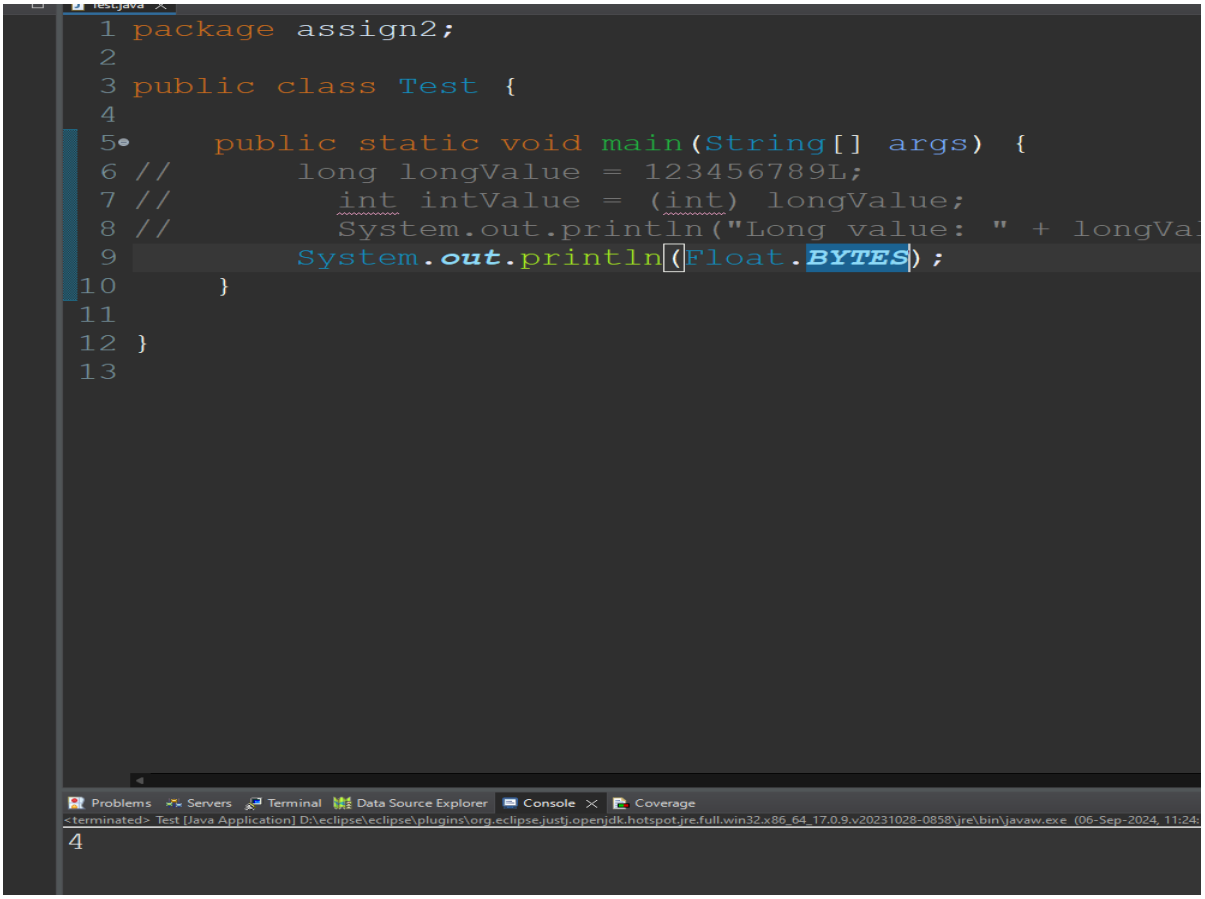
a) a. Explore the Java API documentation for java.lang.Float and observe its modifiers and super types.

⇒static float → MIN_VALUE

static float → NaN

b) Write a program to test how many bytes are used to represent a float value using the BYTES field. (Hint: Use Float.BYTES)

⇒



c) Write a program to find the minimum and maximum values of float using the MIN_VALUE and MAX_VALUE fields. (Hint: Use Float.MIN_VALUE and Float.MAX_VALUE).

⇒

```java
package assign2;

public class Test {

    public static void main(String[] args) {
        System.out.println("Min value: " + Float.MIN_VALUE);
        System.out.println("Max value: " + Float.MAX_VALUE);
    }

}
```

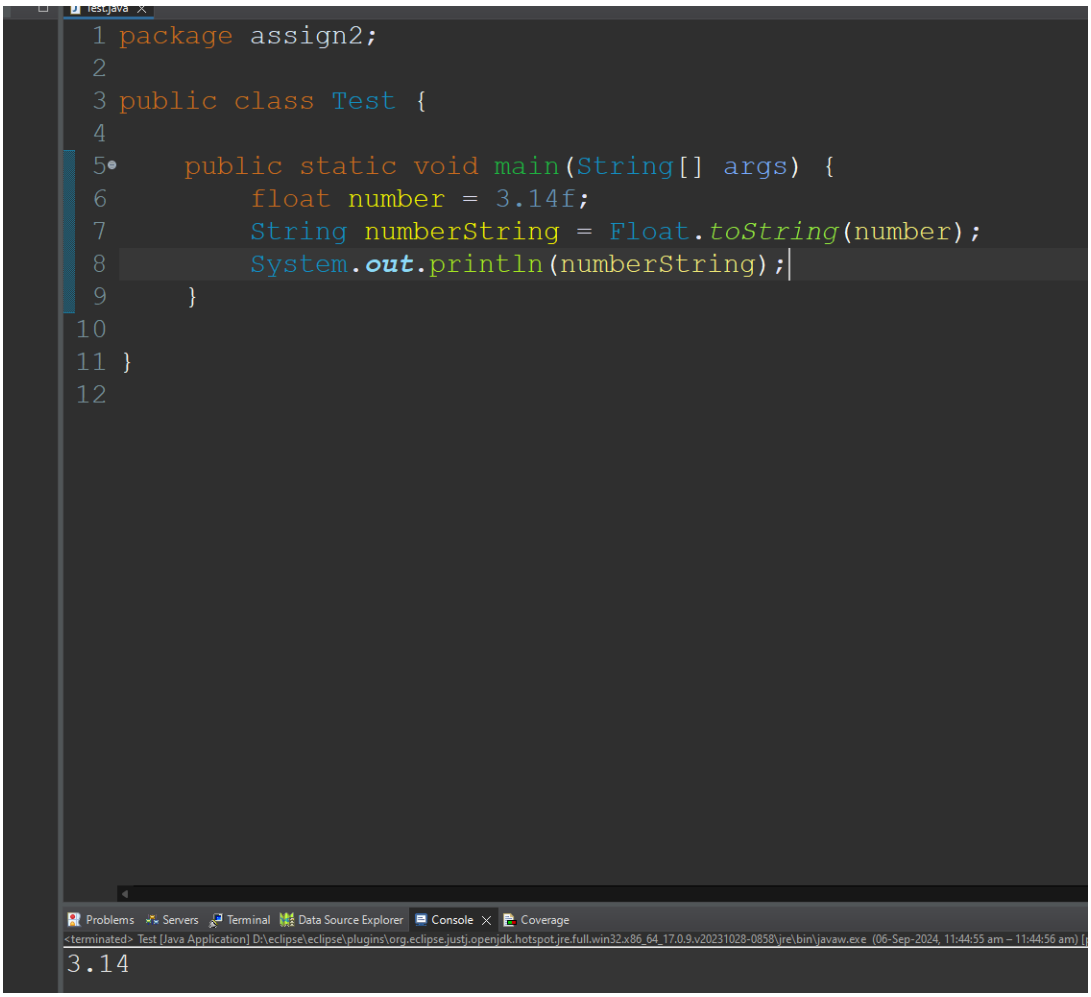
Problems Servers Terminal Data Source Explorer Console Coverage

<terminated> Test [Java Application] D:\eclipse\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.9.v20231028-0858\jre\bin\javaw.exe (06-Sep-2024, 11:43:24 am – 11:43:25 am) [pid: 15088]

```
Min value: 1.4E-45
Max value: 3.4028235E38
```

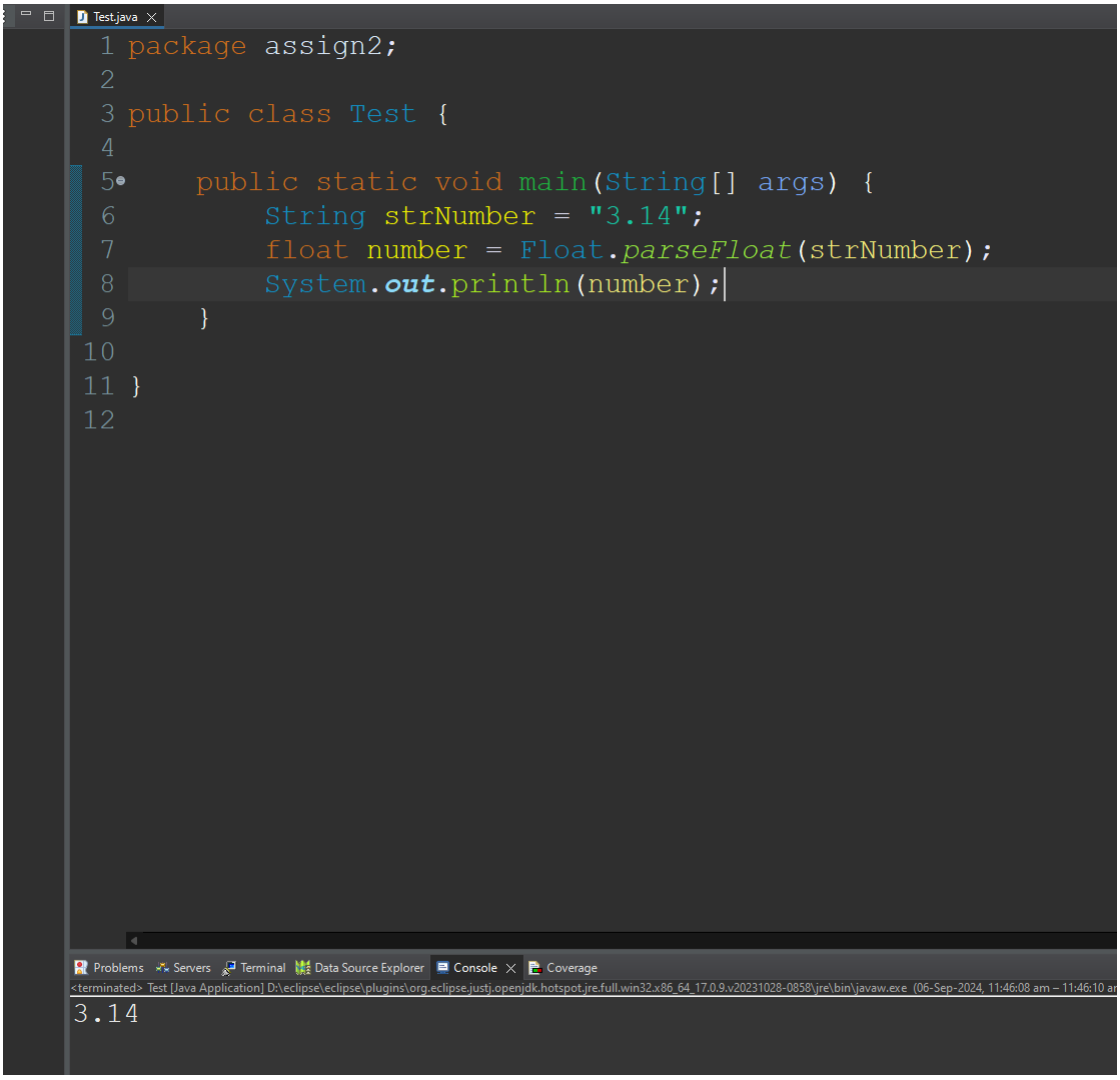
d) Declare a method-local variable number of type float with some value and convert it to a String using the toString method. (Hint: Use Float.toString(float)).

⇒



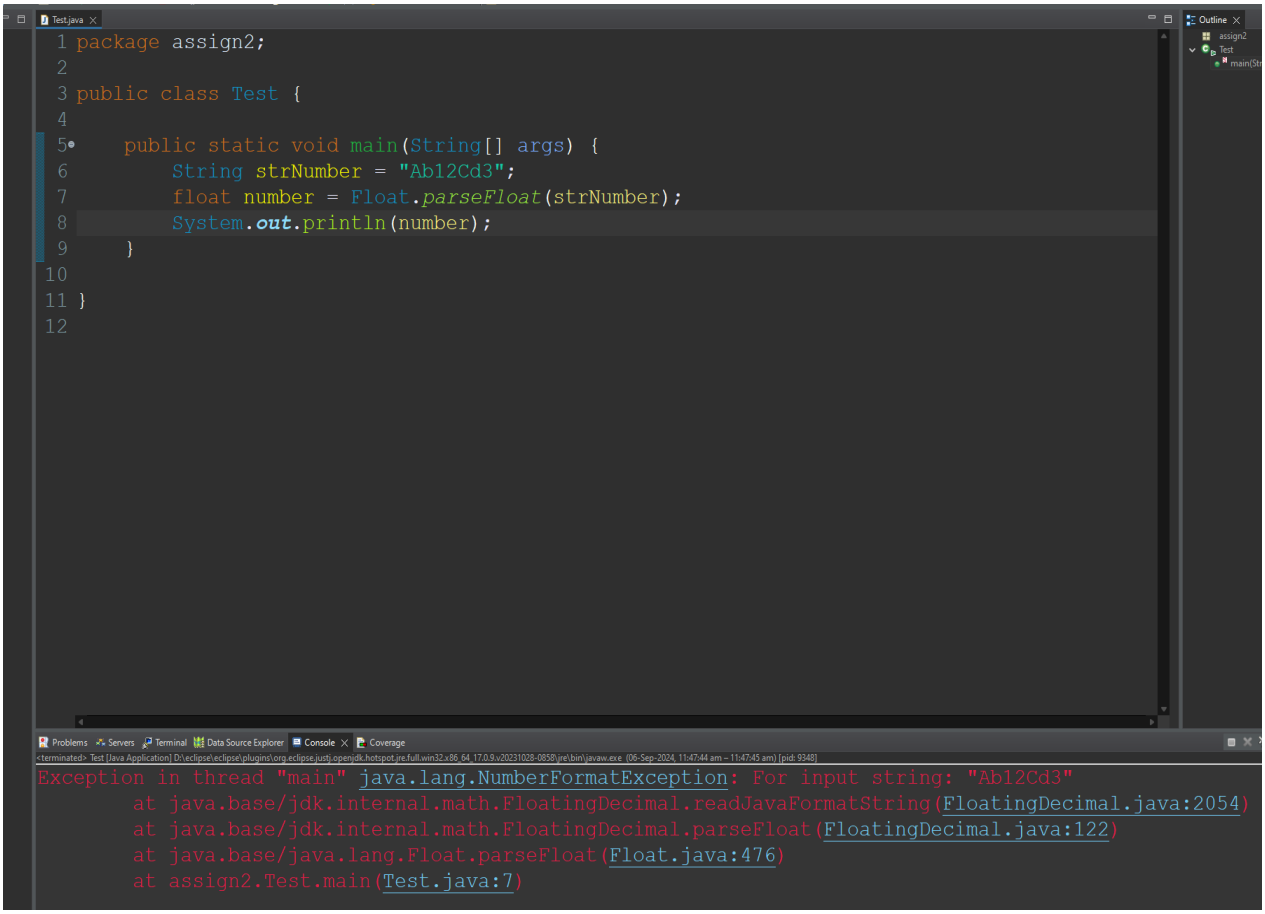
e) Declare a method-local variable strNumber of type String with some value and convert it to a float value using the parseFloat method. (Hint: UseFloat.parseFloat(String)).

⇒



f) Declare a method-local variable strNumber of type String with the value “Ab12Cd3”and attempt to convert it to a float value. (Hint: parseFloat methodwill throw a NumberFormatException).

⇒

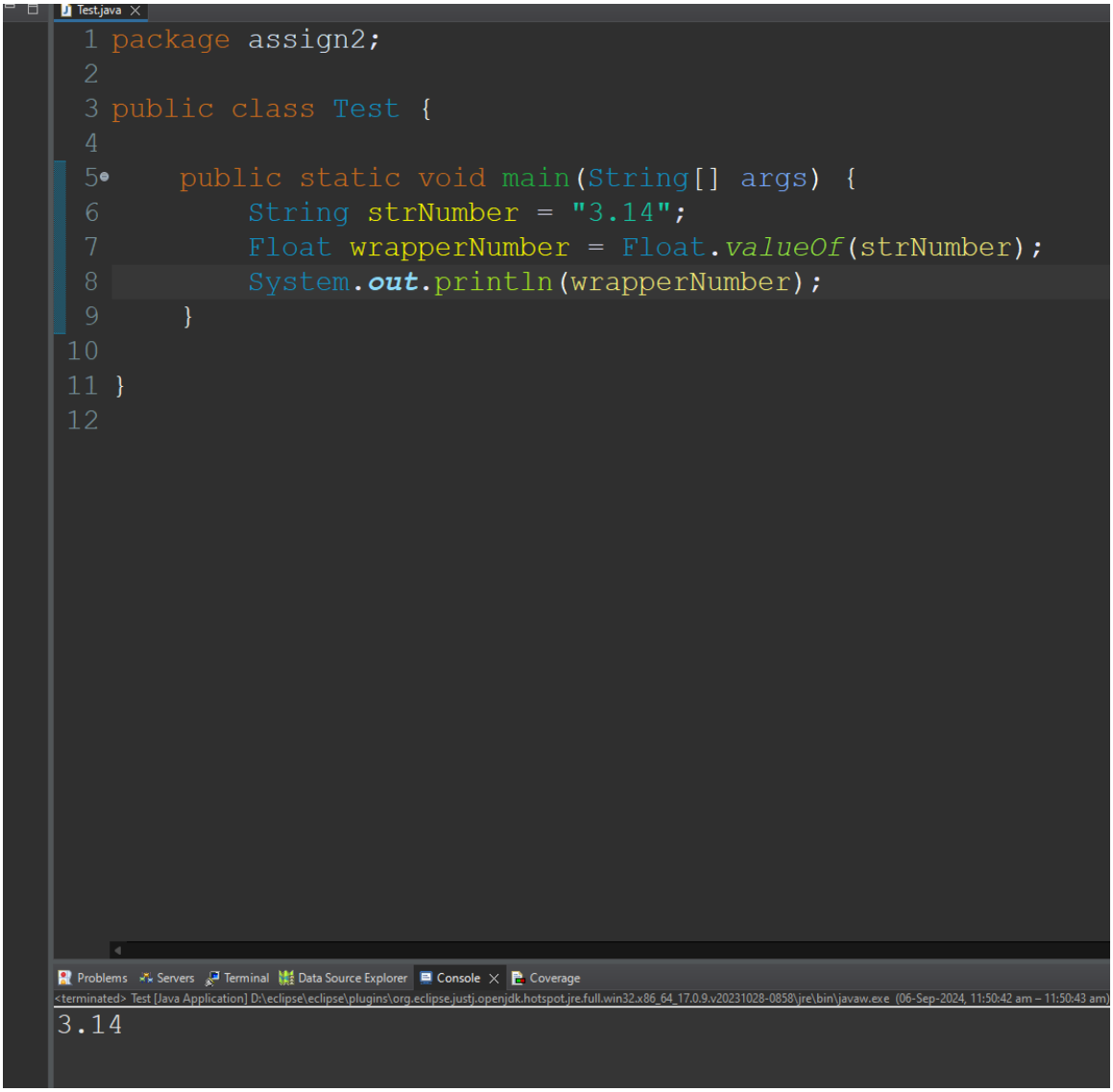


g) Declare a method-local variable number of type float with some value and convert it to the corresponding wrapper class using Float.valueOf(). (Hint:Use Float.valueOf(float)).

⇒

h) Declare a method-local variable strNumber of type String with some float value and convert it to the corresponding wrapper class using Float.valueOf(). (Hint:Use Float.valueOf(String)).

⇒



i) Declare two float variables with values 112.3 and 984.5, and add them using a method from the Float class. (Hint: Use Float.sum(float, float)).

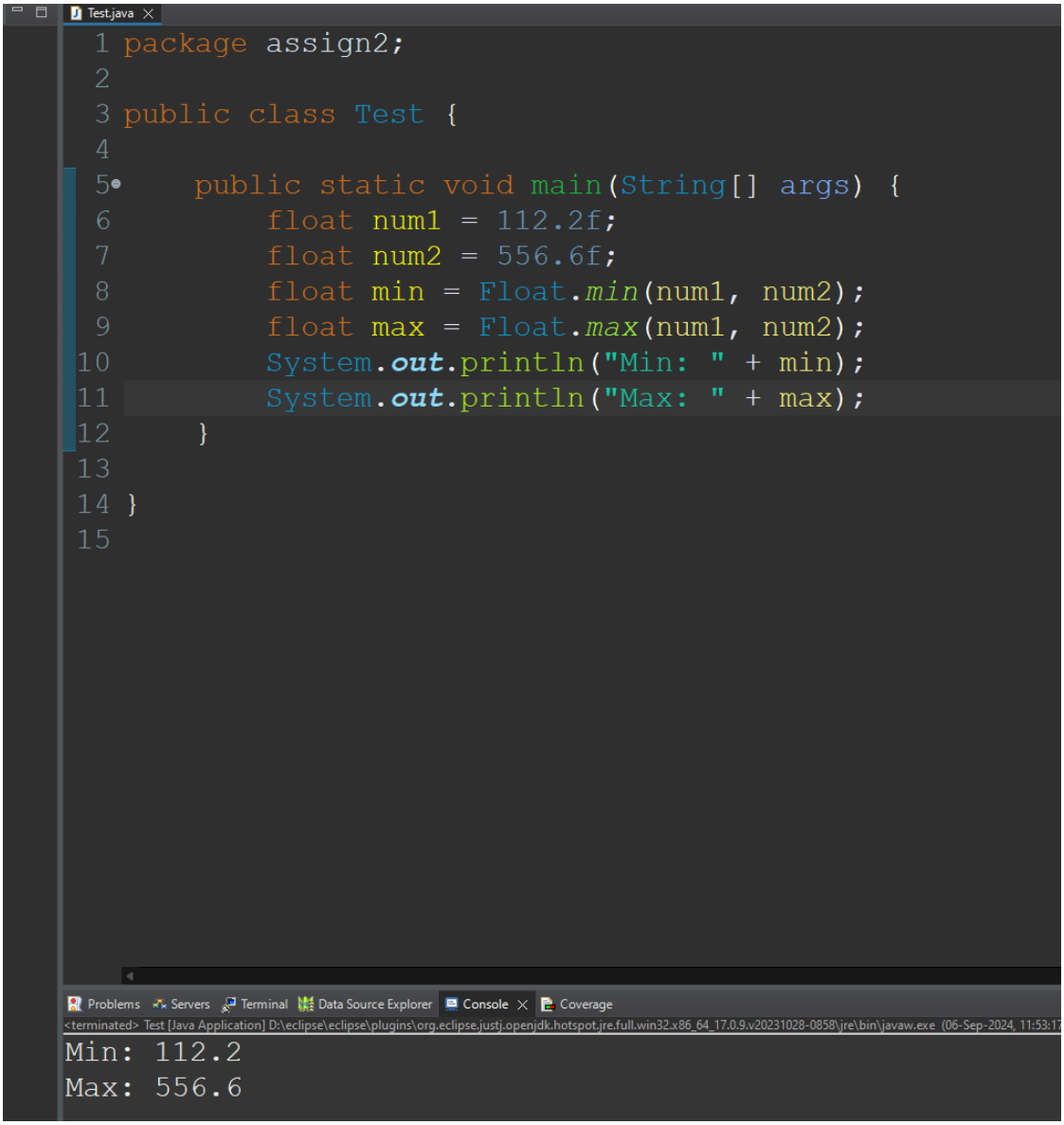
⇒

```java
package assign2;

public class Test {

    public static void main(String[] args) {
        float num1 = 112.3f;
        float num2 = 984.5f;
        float sum = Float.sum(num1, num2);
        System.out.println(sum);
    }

}
```

```
Problems  Servers  Terminal  Data Source Explorer  Console  Coverage
<terminated> Test [Java Application] D:\eclipse\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.9.v20231028-0858\jre\bin\javaw.exe (06-Sep-
1096.8
```

j) Declare two float variables with values 112.2 and 556.6, and find the minimum and maximum values using the Float class. (Hint: Use Float.min(float, float) and Float.max(float, float)).

⇒



k) k. Declare a float variable with the value -25.0f. Find the square root of this value.(Hint: Use Math.sqrt() method).

⇒

Test.java

```java
package assign2;

public class Test {

    public static void main(String[] args) {
        float value = -25.0f;
        double squareRoot = Math.sqrt(value);
        System.out.println("Square root: " + squareRoot);
    }

}
```

Problems Servers Terminal Data Source Explorer Console Coverage

<terminated> Test [Java Application] D:\eclipse\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.9.v20231028-0858\jre\bin\javaw.exe (06-Sep-2024, 11:54:26 am – 11:54:28 am) [pid: 5

```
Square root: NaN
```

l) Declare two float variables with the same value, 0.0f, and divide them. (Hint:Observe the result and any special floating-point behavior).

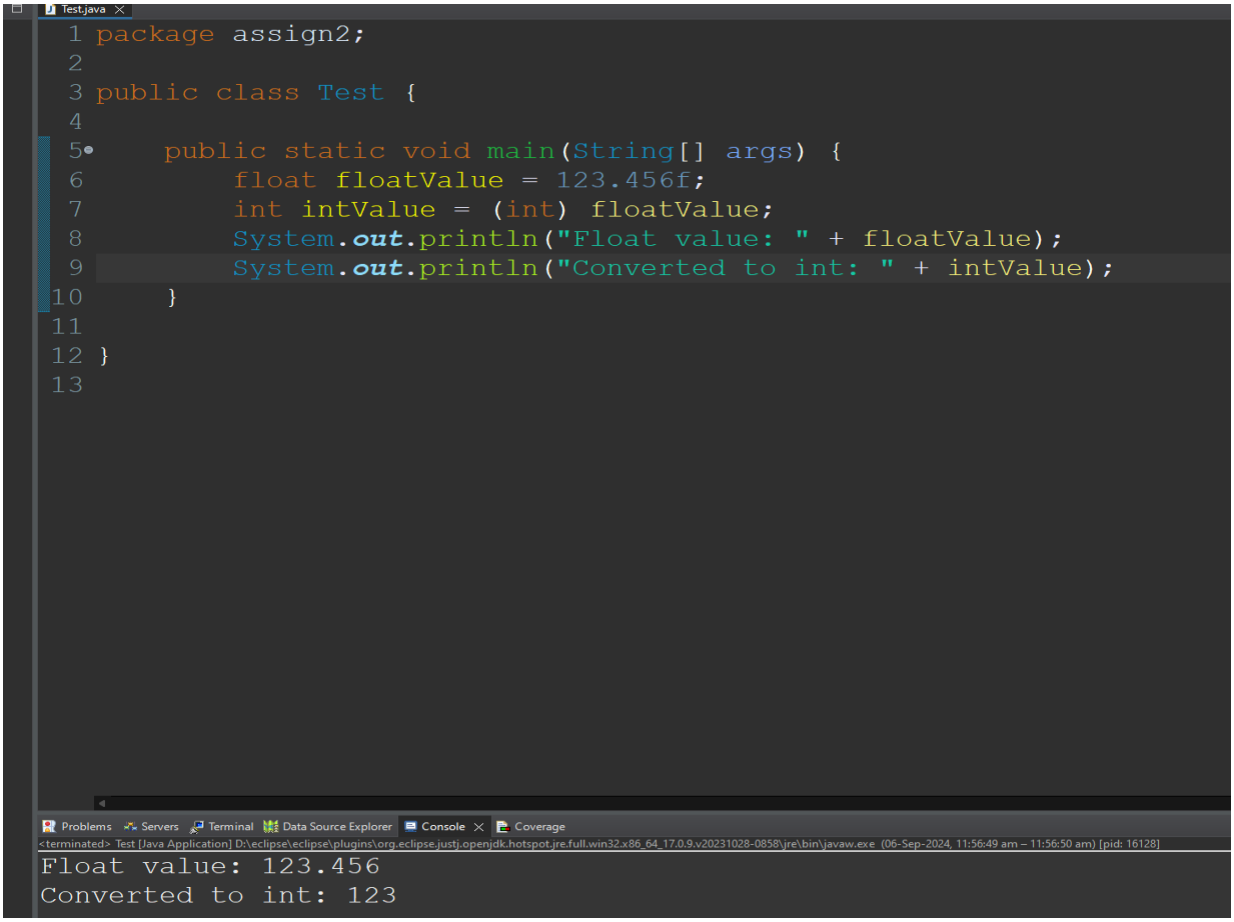
⇒

```java
package assign2;

public class Test {

    public static void main(String[] args) {
        float num1 = 0.0f;
        float num2 = 0.0f;
        float result = num1 / num2;
        System.out.println("Result of division: " + result);
    }

}
```

```
Problems  Servers  Terminal  Data Source Explorer  Console  Coverage
<terminated> Test [Java Application] D:\eclipse\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.9.v20231028-0858\jre\bin\javaw.exe  (06-Sep-2024, 11:55:46 am – 11:55:48 am) [pid: 3796]
Result of division: NaN
```

m) Experiment with converting a float value into other primitive types or vice versa and observe the results.

⇒


Test.java
1 package assign2;
2
3 public class Test {
4
5 public static void main(String[] args) {
6 float floatValue = 123.456f;
7 int intValue = (int) floatValue;
8 System.out.println("Float value: " + floatValue);
9 System.out.println("Converted to int: " + intValue);
10 }
11
12 }
13
Problems Servers Terminal Data Source Explorer Console Coverage
<terminated> Test [Java Application] D:\eclipse\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.9.v20231028-0858\jre\bin\javaw.exe (06-Sep-2024, 11:56:49 am – 11:56:50 am) [pid: 16128]
Float value: 123.456
Converted to int: 123