Lab Assignment – 25

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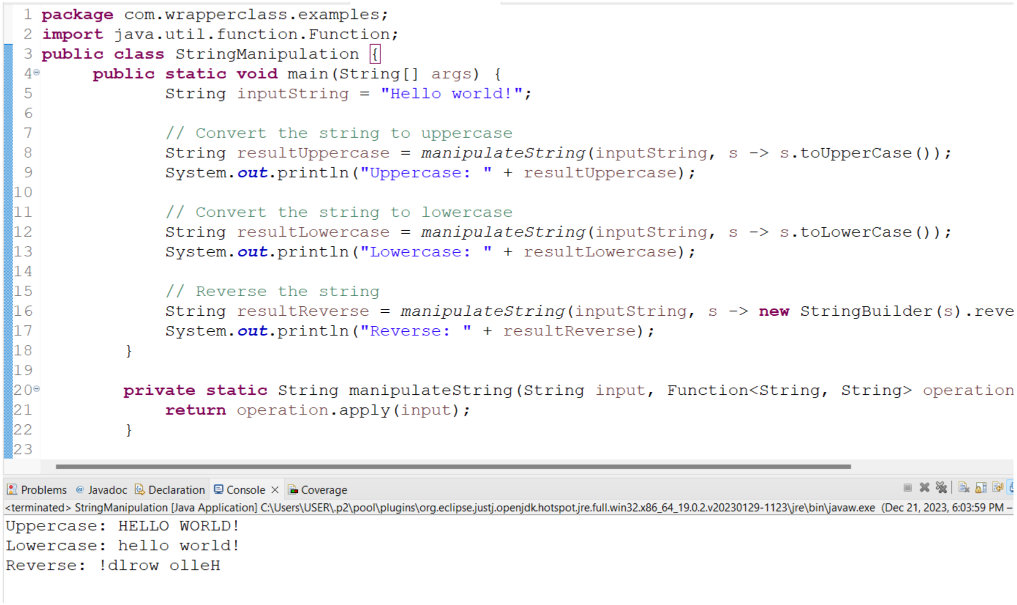
1)Write a Java program that uses lambda expressions to manipulate strings. Create lambda expressions to perform the following operations on a given string:

- Convert the string to uppercase
- Convert the string to lowercase
- Reverse the string

```java
package com.wrapperclass.examples;
import java.util.function.Function;
public class StringManipulation {
     public static void main(String[] args) {
            String inputString = "Hello world!";

            // Convert the string to uppercase
            String resultUppercase = 
manipulateString(inputString, s -> s.toUpperCase());
            System.out.println("Uppercase: " + 
resultUppercase);

            // Convert the string to lowercase
            String resultLowercase = 
manipulateString(inputString, s -> s.toLowerCase());
            System.out.println("Lowercase: " + 
resultLowercase);

            // Reverse the string
            String resultReverse = 
manipulateString(inputString, s -> new 
StringBuilder(s).reverse().toString());
            System.out.println("Reverse: " + 
resultReverse);
        }
        private static String manipulateString(String
input, Function<String, String> operation) {
            return operation.apply(input);
        }

}
```

Output:



```java
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import java.util.function.Function;
public class StringManipulation {
    public static void main(String[] args) {
        String inputString = "Hello world!";

        // Convert the string to uppercase
        String resultUppercase = manipulateString(inputString, s -> s.toUpperCase());
        System.out.println("Uppercase: " + resultUppercase);

        // Convert the string to lowercase
        String resultLowercase = manipulateString(inputString, s -> s.toLowerCase());
        System.out.println("Lowercase: " + resultLowercase);

        // Reverse the string
        String resultReverse = manipulateString(inputString, s -> new StringBuilder(s).reve
        System.out.println("Reverse: " + resultReverse);
    }

    private static String manipulateString(String input, Function<String, String> operation
        return operation.apply(input);
    }

```
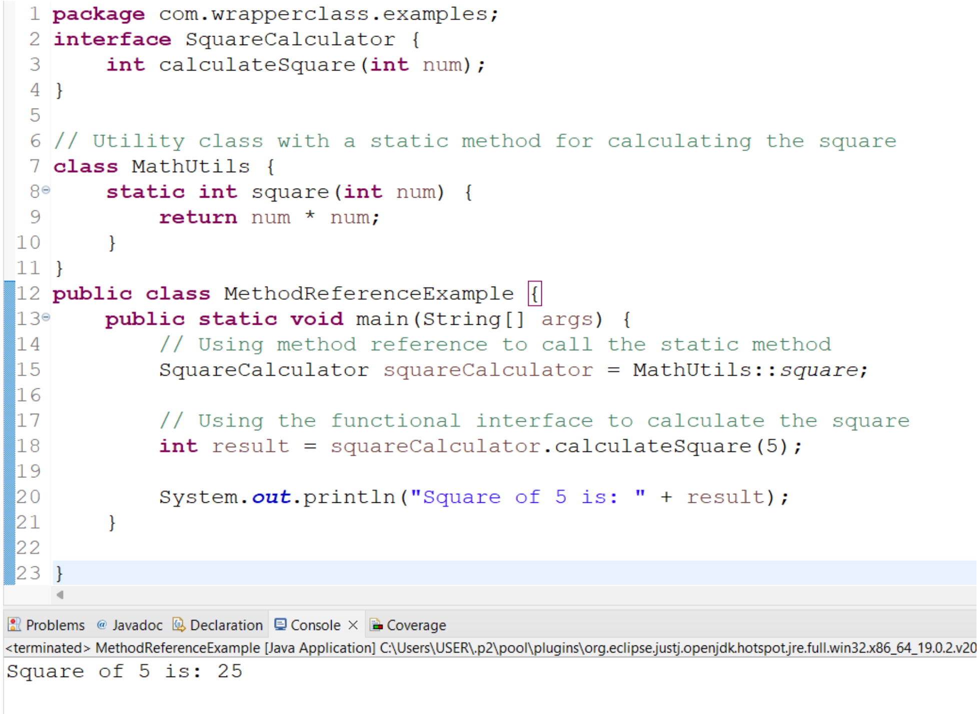

```
<terminated> StringManipulation [Java Application] C:\Users\USER\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_19.0.2.v20230129-1123\jre\bin\javaw.exe  (Dec 21, 2023, 6:03:59 PM –
Uppercase: HELLO WORLD!
Lowercase: hello world!
Reverse: !dlrow olleH
```

2) Write a Java program that demonstrates the use of method references for static methods. Create a functional interface and use a method reference to call a static method that calculates the square of a number.

```java
package com.wrapperclass.examples;
interface SquareCalculator {
    int calculateSquare(int num);
}

// Utility class with a static method for calculating
the square
class MathUtils {
    static int square(int num) {
        return num * num;
    }
}
public class MethodReferenceExample {
    public static void main(String[] args) {
        // Using method reference to call the static method
        SquareCalculator squareCalculator = MathUtils::square;

        // Using the functional interface to calculate the square
        int result = squareCalculator.calculateSquare(5);

        System.out.println("Square of 5 is: " + result);
    }

}
```

Output:



```
package com.wrapperclass.examples;
interface SquareCalculator {
    int calculateSquare(int num);
}

// Utility class with a static method for calculating the square
class MathUtils {
    static int square(int num) {
        return num * num;
    }
}
public class MethodReferenceExample {
    public static void main(String[] args) {
        // Using method reference to call the static method
        SquareCalculator squareCalculator = MathUtils::square;

        // Using the functional interface to calculate the square
        int result = squareCalculator.calculateSquare(5);

        System.out.println("Square of 5 is: " + result);
    }

}
```

```
<terminated> MethodReferenceExample [Java Application] C:\Users\USER\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_19.0.2.v20
Square of 5 is: 25
```