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
import java.util.Scanner;
//Functional Interface
interface StringOperation
{
        String operate(String str);
}
public class NewLambda
{
        public static void main(String[] args)
        {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a string you want to
manipulate:");
        //Taking input from user
            String input = sc.nextLine();

            // Convert to uppercase
            StringOperation toUpper = (str) ->
            {
                StringBuilder result = new
StringBuilder();
                for (char c : str.toCharArray())
                {
                    if (Character.isLowerCase(c))
                    {
result.append(Character.toUpperCase(c));
                    }
                    else
                    {
                        result.append(c);
                    }
                }
                return result.toString();
            };
```

```java
        // Convert to lowercase
        StringOperation toLower = str ->
        {
            StringBuilder result = new
StringBuilder();
            for (char c : str.toCharArray())
            {
                if (Character.isUpperCase(c))
                {
result.append(Character.toLowerCase(c));
                } else {
                    result.append(c);
                }
            }
            return result.toString();
        };

        // Reverse the string
        StringOperation reverse = str -> {
            StringBuilder result = new
StringBuilder();
            for (int i = str.length() - 1; i >= 0;
i--)
            {
                result.append(str.charAt(i));
            }
            return result.toString();
        };

        // Apply operations
        System.out.println("Uppercase: " +
toUpper.operate(input));
        System.out.println("Lowercase: " +
toLower.operate(input));
        System.out.println("Reversed: " +
reverse.operate(input));
    }
}
```

Output:

```
Enter a string you want to manipulate:
Hello Anudip
Uppercase: HELLO ANUDIP
Lowercase: hello anudip
Reversed: pidunA 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
interface Calc                  //Functional Interface
{
    void num(int number);
    static void square(int num) {            //static method
    System.out.println("Square is "+num*num);

    }
}
public class StaticMethodSquare {

    public static void main(String[] args)
    {
        Calc c=(int number)->{          // Lambda Expression
            System.out.println("The Number is: "+number);
        };
        c.num(5);
        Calc.square(5);

    }

}
```

Output:

```
The Number is: 5
Square is 25
```