Name: Kulvir Singh
Reg. No.: 19BCE2074

Question 1

Write a java program for the following:-
Make an array containing a few Strings. **Sort it by**
• Length (i.e., shortest to longest)
• Reverse length (i.e., longest to shortest)
• Alphabetically by the first character only
• Strings that contain "e" first, everything else second. For now, put the code directly in the lambda

Aim :

To implement the sorting cases for the array of strings that is input by the user

Algorithm:

1. START
2. Create an interface to run the lambda function
3. Create a public class
4. Create a method to sort the array of strings length wise in ascending order using lambda expression
5. Create a method to sort the array of strings length wise in descending order using lambda expression
6. Create a method to sort the array of strings alphabetically by the first character using lambda expression
7. Create a method the main method to call the methods accordingly.
8. Create a lambda expression to display all the strings which start with e
9. Display all the strings which do not start with e using lambda expression
10. STOP

Code:

```
import java.util.*;


interface LambdaFunction {

   void containsE(String s);
```

```java
    }

public class da {

    private static void sortLengthwise(String[] array, char order) {
        if (order == 'r') {
            Arrays.sort(array, Collections.reverseOrder());
        } else {
            Arrays.sort(array);
        }
        displayArray(array);
    }
    private static void sortFirstCharwise(String[] array) {
        Arrays.sort(array, (s1, s2) -> s1.charAt(0) - s2.charAt(0));
        displayArray(array);
    }
    private static void displayArray(String[] array) {
        Arrays.asList(array).forEach(System.out::println);
    }
    public static void main(String[] args) {
        Scanner x = new Scanner(System.in);
        String arr[];
        int len;
        System.out.println("Enter the length of the string array: ");
        len = x.nextInt();
        arr = new String[len];
        for (int i = 0; i < len; i++) {
            arr[i] = x.next();
        }
```

```java
        System.out.println("\nSorting Lengthwise in Ascending Order:");

        sortLengthwise(arr, 'a');

        System.out.println("\nSorting Lengthwise in Descending Order:");

        sortLengthwise(arr, 'r');

        System.out.println("\nSorting by First Character in Alphabetical Order:");

        sortFirstCharwise(arr);

        System.out.println("\nSorting using lambdas based on strings containing 'e':");

        Arrays.asList(arr).forEach(s -> { if(s.contains("e") || s.contains("E")) System.out.println(s); });

        Arrays.asList(arr).forEach(s -> { if(!s.contains("e") && !s.contains("E")) System.out.println(s); });

    }

}
```
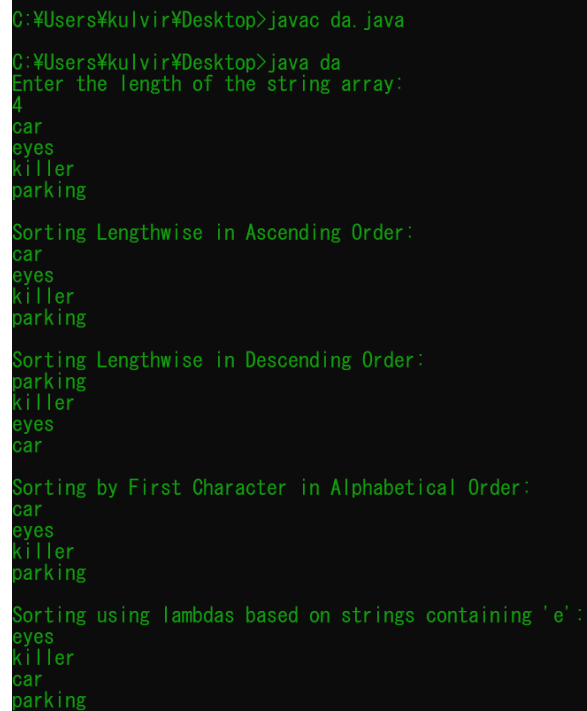
Output Screenshot:

Question 2

Write a java program using Lambda to "capitalize" a string. Change the first letter of each word in the string to upper case (if it is not already upper case). For example, a capitalized version of "vellore institute of technology" is "Vellore Institute Of Technology ". Write a method named printCapitalized that will print a capitalized version of a string to standard output. The string to be printed should be a parameter to the method. Test your method with a main() routine that gets a line of input from the user and applies the method to it.

To capitalize the first letter of every word input by the user using lambda expression

1. Start
2. Create an interface to run the lambda expression
3. Create a class
4. Create a main method which takes input form the user and has the lambda expression which converts the first letter a string to uppercase
5. Create the printCapitalise method to convert the string into required format
6. Pass the lambda expression as a function along with string input by the user from the main method.
7. Extract each word from the string and pass it to the lambda expression/function to capitalize the first letter
8. Display the modified string
9. Stop

```java
import java.util.*;

interface StringFunction {

        String run(String str);

 }


public class da{

        public static void main(String[] args) {

                StringFunction word = (s) -> Character.toUpperCase(s.charAt(0))+s.substring(1);

                Scanner x = new Scanner(System.in);

                System.out.println("enter a string");

                String inp  = x.nextLine();

                printCapitalise(inp,word);
```

```java
        }

        public static void printCapitalise(String s,StringFunction z){

                int i;String w="";String nw="";

                s=s+" ";


                for(i=0;i<s.length();i++){

                        if(s.charAt(i)!=' ')

                        w = w+s.charAt(i);

                        else{


                                nw = nw+ z.run(w)+" ";

                                w="";

                        }

                }

                System.out.println("Capitalised String = "+nw);

        }
}
```

```
C:\Users\kulvir\Desktop>javac da.java

C:\Users\kulvir\Desktop>java da
enter a string
vellore institute of technology
Capitalised String = Vellore Institute Of Technology
```