Gebze Technical University

Computer Engineering

CSE222-2020-SPRING

Homework-4_part3 Report

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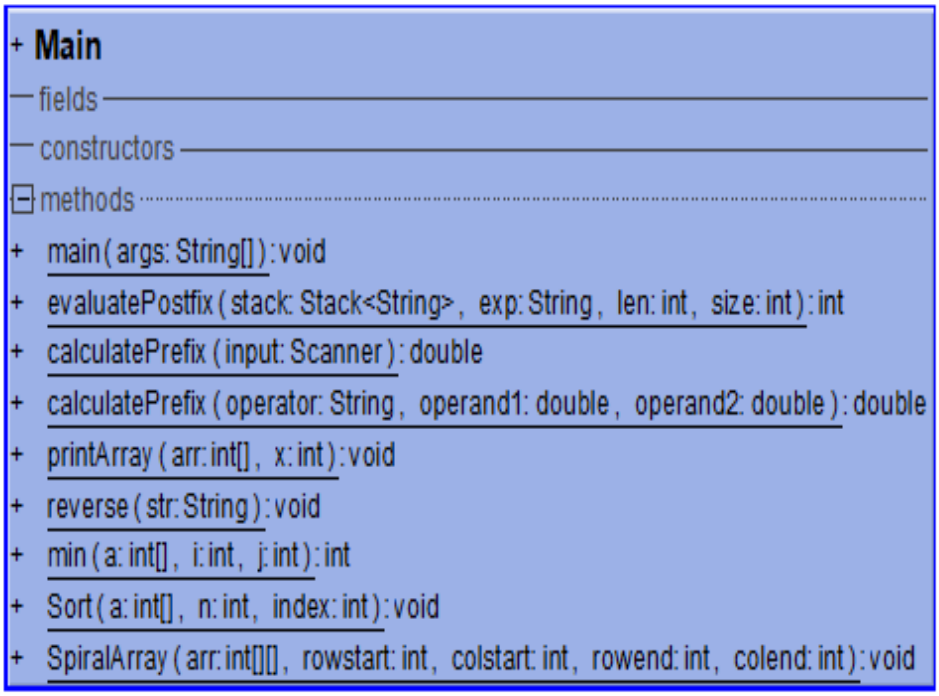
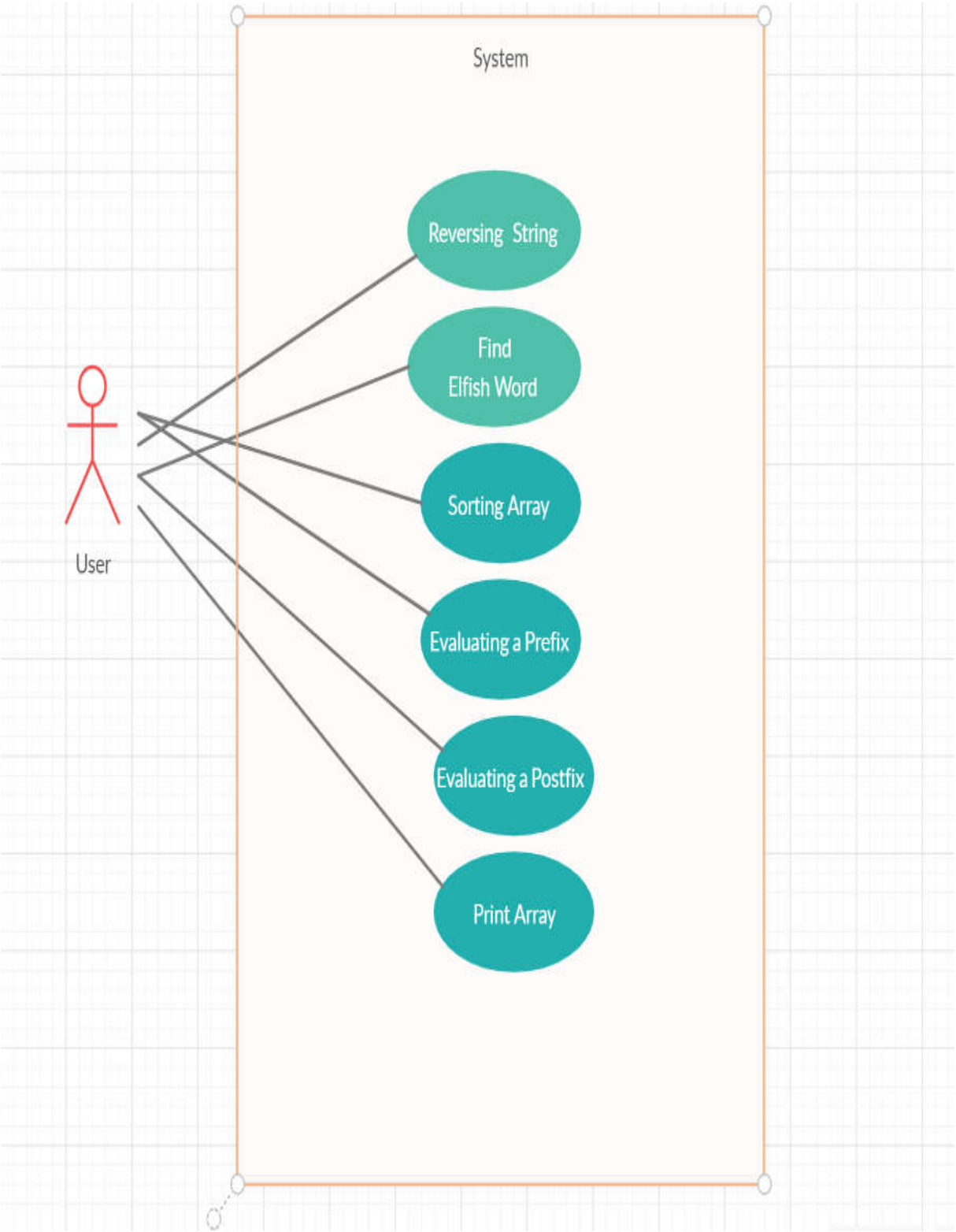
1)Problem Solutions Approach

1) *It is shredded according to the spaces in the string and then printed in reverse.*
2) *Looks for the letters l,m,e in it and decides whether it is elfish or not.*
3) *Sorts the integer elements from small to large.*
4) *Calculates the result of the prefix expression with the help of stack.*
5) *Calculates the result of the postfix expression with the help of stack.*
6) *Prints a two-dimensional array of integers spirally on the screen.*

2) Class Diagram



3)Use Case Diagram



4)Test Case

a) Prints the words of the string in reverse.

```
System.out.println("*******Reversing-String********");
String array="This function writes the sentence in reverse";
System.out.println("Current String: "+array);
System.out.print("Reverse String: ");
reverse(array);
```

```
*******Reversing-String********
Current String: This function writes the sentence in reverse
Reverse String: reverse in sentence the writes function This
```

b) Sorts the array of integers from small to large.

```
System.out.println("\n**********Sorting-An-Array**************");
int arr[] = {3, 1, 5, 2, 7, 0};
System.out.print("Current Array: ");
printArray(arr, x: 0);
System.out.println();
System.out.print("Sorted Array: ");
Sort(arr, arr.length, index: 0);
printArray(arr, x: 0);
```

```
**********Sorting-An-Array**************
Current Array: 3 1 5 2 7 0
Sorted Array: 0 1 2 3 5 7
```

c) ***Prints a two-dimensional array of integers spirally on the screen.***

```
System.out.println("\n**********Spiral-Print**************");
int a[][] = {{1, 2, 3, 4},
        {5, 6, 7, 8},
        {9, 10, 11, 12},
        {13, 14, 15, 16},
        {17,18,19,20}};

SpiralArray(a, rowstart: 0, colstart: 0, rowend: 5, colend: 4);
```

```
**********Spiral-Print**************
1 2 3 4 8 12 16 20 19 18 17 13 9 5 6 7 11 15 14 10
```

d) ***Calculates the result of the prefix expression with the help of stack.***

```
    System.out.println("\n***************Evaluating-Prefix-Expression********************");

    try {

        Scanner console = new Scanner(System.in);
        System.out.println("This program evaluates prefix expressions");
        System.out.println("Operators +, -, *, / and %");
        System.out.print("Expression: ");
        System.out.println("Value = " + calculatePrefix(console));
    }
    catch (RuntimeException e){
        System.out.println("İllegal Operator:" +e.getMessage());
    }
    System.out.println("****************************************************");
}
```

```
***************Evaluating-Prefix-Expression********************
This program evaluates prefix expressions
Operators +, -, *, / and %
Expression: *
3
2
Value = 6.0
****************************************************
```

e) *Calculates the result of the postfix expression with the help of stack.*

```
System.out.println("\n**********************Evaluating-Postfix-Expression*******************************");

Stack<String> stack=new Stack<>();
String exp="32+";
System.out.println("PostFix Expression: "+exp);
System.out.println("PostFix evaluation: "+evaluatePostfix(stack,exp, len: 0, size: exp.length()-1));
```

```
**********************Evaluating-Postfix-Expression*******************************
PostFix Expression: 32+
PostFix evaluation: 5
```

f) Looks for the letters l,m,e in it and decides whether it is elfish or not.

```
System.out.println("\n*****************************Elfish--Word*********************************************");
String arrx="whiteleaf";
System.out.print(arrx+":");
Olustur(arrx);
String arr1x="Gebze Teknik";
System.out.print(arr1x+":");
Olustur(arr1x);
String arr2x="unfriendly";
System.out.print(arr2x+":");
Olustur(arr2x);
```

```
*****************************Elfish--Word*********************************************
whiteleaf:Elfish words
Gebze Teknik:Not elfish words
unfriendly:Elfish words
```