

## Java Week 9 : Q2

Due on 2020-11-19, 23:59 IST

Complete the code to develop an ADVANCED CALCULATOR that emulates all the functions of the GUI Calculator as shown in the image.



Note the following points carefully:

1. Use only `double` datatype to store all numeric values.
2. Each button on the calculator should be operated by typing the characters from 'a' to 'p'.
3. To calculate 25-6, User should input fjhkc (where, f for 2, j for 5, h for '-', k for 6 and c for '=').
3. You may use the already defined function `gui_map(char)`.
4. Without '=', operations won't give output as shown in Input\_2 and Output\_2 example below.
5. The calculator should be able to perform required operations on two operands as shown in the below example:

Input\_1:  
klgc

Output\_1:  
18.0

Input\_2:  
klg

Output\_2:

Private Test cases used for evaluation

Test Case 1

Test Case 2

Input	Expected Output	Actual Output	Status
efagdbamc	13.0	13.0	Passed
mlkc	42.0	42.0	Passed

The due date for submitting this assignment has passed.

2 out of 2 tests passed.

You scored 100.0/100.

Assignment submitted on 2020-11-10, 22:50 IST

Your last recorded submission was :

```

1 import java.util.Scanner;
2 public class Question92{
3     public static void main(String args[]){
4         Scanner sc = new Scanner(System.in);
5         String input = sc.nextLine();
6         // Write code below...
7
8         char seq[] = input.toCharArray();
9         int outflag=0;
10
11         // Start the mapping process for each input character
12         for(int i=0; i<seq.length; i++){
13             seq[i]=gui_map(seq[i]);
14         }
15
16         //Print Mapped GUI (remove comment to see the mapped sequence input)
17         /*
18         for(int i=0; i<seq.length; i++){
19             System.out.print(seq[i]);
20         }
21         */
22
23         // Use double type of values for entire calculation
24         double operand1=0.0;
25         String o1="";
26         double operand2=0.0;
27         String o2="";
28         double output=0.0;
29
30         // Perform calculator operations
31         outerloop:
32         for(int i=0; i<seq.length; i++){

```

### Course outline

How does an NPTEL online course work?

Week 0 : Assignment 0

Week 1 :

Week 2 :

Week 3 :

Week 4 :

Week 5 :

Week 6 :

Week 7 :

Week 8 :

Week 9 :

• Lecture 41 : Demonstration- XV

• Lecture 42 : AWT Programming--III

• Lecture 43 : Swing—I

• Lecture 44 : Swing—II

• Lecture 45 : Demonstration- XVI

• Quiz: Assignment 9

• Java Week 9 : Q1

• Java Week 9 : Q2

• Java Week 9 : Q3

• Java Week 9 : Q4

• Java Week 9 : Q5

• Feedback For Week 9

Week 10 :

Week 11 :

Week 12 :

Solution

### DOWNLOAD VIDEOS

Text Transcripts

Programming Test - (April 11 - 10AM - 12 PM)

Programming Test - (April 11 - 8PM - 10 PM)

```

33     int r=0;
34     if(seq[i]=='+'||seq[i]=='-'||seq[i]=='/'||seq[i]=='X'||seq[i]=='='){
35         for(int j=0; j<i; j++){
36             o1+=Character.toString(seq[j]);
37         }
38         operand1=Double.parseDouble(o1);
39         for(int k=i+1; k<seq.length; k++){
40             if(seq[k]=='='){
41                 outflag=1;
42                 operand2=Double.parseDouble(o2);
43                 if(seq[i]=='+'){
44                     output=operand1+operand2;
45                 }else if(seq[i]=='-'){
46                     output=operand1-operand2;
47                 }else if(seq[i]=='/'){
48                     output=operand1/operand2;
49                 }else if(seq[i]=='X'){
50                     output=operand1*operand2;
51                 }
52                 break outerloop;
53             }else{
54                 o2+=Character.toString(seq[k]);
55             }
56         }
57     }
58 }
59
60 // Check if output is available and print the output
61 if(outflag==1)
62     System.out.print(output);
63 } // The main() method ends here.
64
65 // A method that takes a character as input and returns the corresponding GUI character
66 static char gui_map(char in){
67     char out = '\0'; // N = Null/Empty
68     char gm[][]={{
69         'a','0',
70         'b','1',
71         'c','+',
72         'd','-',
73         'e','1',
74         'f','2',
75         'g','3',
76         'h','-',
77         'i','4',
78         'j','5',
79         'k','6',
80         'l','X',
81         'm','7',
82         'n','8',
83         'o','9',
84         'p','/'
85     }};
86
87     // Checking for maps
88     for(int i=0; i<gm.length; i++){
89         if(gm[i][0]==in){
90             out=gm[i][1];
91             break;
92         }
93     }
94     return out;
95 }

```

Sample solutions (Provided by instructor)

```

1  import java.util.Scanner;
2  public class Question92{
3      public static void main(String args[]){
4          Scanner sc = new Scanner(System.in);
5          String input = sc.nextLine();
6          char seq[] = input.toCharArray();
7          int outflag=0;
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9          // Start the mapping process for each input character
10         for(int i=0; i<seq.length; i++){
11             seq[i]=gui_map(seq[i]);
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15         /*
16         for(int i=0; i<seq.length; i++){
17             System.out.print(seq[i]);
18         }
19         */
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21         // Use double type of values for entire calculation
22         double operand1=0.0;
23         String o1="";
24         double operand2=0.0;
25         String o2="";
26         double output=0.0;
27
28         // Perform calculation operations
29         outerloop:
30         for(int i=0; i<seq.length; i++){
31             int r=0;
32             if(seq[i]=='+'||seq[i]=='-'||seq[i]=='/'||seq[i]=='X'||seq[i]=='='){
33                 for(int j=0; j<i; j++){
34                     o1+=Character.toString(seq[j]);
35                 }
36                 operand1=Double.parseDouble(o1);
37                 for(int k=i+1; k<seq.length; k++){
38                     if(seq[k]=='='){
39                         outflag=1;
40                         operand2=Double.parseDouble(o2);
41                         if(seq[i]=='+'){
42                             output=operand1+operand2;
43                         }else if(seq[i]=='-'){
44                             output=operand1-operand2;
45                         }else if(seq[i]=='/'){
46                             output=operand1/operand2;
47                         }else if(seq[i]=='X'){
48                             output=operand1*operand2;
49                         }
50                         break outerloop;
51                     }else{
52                         o2+=Character.toString(seq[k]);
53                     }
54                 }
55             }
56         }
57
58         // Check if output is available and print the output
59         if(outflag==1)
60             System.out.print(output);
61     } // The main() method ends here.
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63     // A method that takes a character as input and returns the corresponding GUI character
64     static char gui_map(char in){
65         char out = '\0'; // N = Null/Empty
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68             'b','1',
69             'c','+',
70             'd','-',
71             'e','1',
72             'f','2',
73             'g','3',
74             'h','-',
75             'i','4',
76             'j','5',
77             'k','6',
78             'l','X',
79             'm','7',
80             'n','8',
81             'o','9',
82             'p','/'
83         }};
84
85         // Checking for maps
86         for(int i=0; i<gm.length; i++){
87             if(gm[i][0]==in){
88                 out=gm[i][1];
89                 break;
90             }
91         }
92         return out;
93     }
94 }

```

```

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}

    {
        'a', '1'
        'f', '2'
        'g', '3'
        'h', '4'
        'i', '5'
        'j', '6'
        'l', 'x'
        'm', '7'
        'n', '8'
        'o', '9'
        'p', '/'
    };

    // Checking for maps
    for(int i=0; i<gm.length; i++){
        if(gm[i][0]==in){
            out=gm[i][1];
            break;
        }
    }
    return out;
}

```