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	Input	Expected Output	Actual Output	Status
Test Case 1	efagdbamc	13.0	13.0	Passed
Test Case 2	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 :

```
import java.util.Scanner;
public class Question92{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        String input = sc.nextLine();
// Write code below...

char seq[] = input.toCharArray();
        int outflag=0;

        // Start the mapping process for each input character
        for(int i=0; i<seq.length; i++){
            seq[i]=gui_map(seq[i]);
        }

        //Print Mapped GUI (remove comment to see the mapped sequence input)
        /*
        for(int i=0; i<seq.length; i++){
            System.out.print(seq[i]);
        }
        */

        // Use double type of values for entire calculation
        double operand1=0.0;
        String o1="";
        double operand2=0.0;
        String o2="";
        double output=0.0;

        // Perform calculaton operations
        outerloop:
        for(int i=0; i<seq.length; i++){
```

```
            int r=0;
            if(seq[i]=='+'||seq[i]=='-'||seq[i]=='/'||seq[i]=='X'||seq[i]=='='){
                for(int j=0; j<i; j++){
                    o1+=Character.toString(seq[j]);
                }
                operand1=Double.parseDouble(o1);
                for(int k=i+1; k<seq.length; k++){
                    if(seq[k]=='='){
                        outflag=1;
                        operand2=Double.parseDouble(o2);
                        if(seq[i]=='+'){
                            output=operand1+operand2;
                        }else if(seq[i]=='-'){
                            output=operand1-operand2;
                        }else if(seq[i]=='/'){
                            output=operand1/operand2;
                        }else if(seq[i]=='X'){
                            output=operand1*operand2;
                        }
                        break outerloop;
                    }else{
                        o2+=Character.toString(seq[k]);
                    }
                }
            }
        }

        // Check if output is available and print the output
        if(outflag==1)
            System.out.print(output);
}// The main() method ends here.

// A method that takes a character as input and returns the corresponding GUI character
    static char gui_map(char in){
        char out = 'N';// N = Null/Empty
        char gm[][]={{'a','.'}
                    ,{'b','0'}
                    ,{'c','='}
                    ,{'d','+'}
                    ,{'e','1'}
                    ,{'f','2'}
                    ,{'g','3'}
                    ,{'h','-'}
                    ,{'i','4'}
                    ,{'j','5'}
                    ,{'k','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;
    }
}
```

Sample solutions (Provided by instructor)

```
import java.util.Scanner;
public class Question92{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
        String input = sc.nextLine();
               char seq[] = input.toCharArray();
        int outflag=0;

        // Start the mapping process for each input character
        for(int i=0; i<seq.length; i++){
            seq[i]=gui_map(seq[i]);
        }

        //Print Mapped GUI (remove comment to see the mapped sequence input)
        /*
        for(int i=0; i<seq.length; i++){
            System.out.print(seq[i]);
        }
        */

        // Use double type of values for entire calculation
        double operand1=0.0;
        String o1="";
        double operand2=0.0;
        String o2="";
        double output=0.0;

        // Perform calculaton operations
        outerloop:
        for(int i=0; i<seq.length; i++){
            int r=0;
            if(seq[i]=='+'||seq[i]=='-'||seq[i]=='/'||seq[i]=='X'||seq[i]=='='){
                for(int j=0; j<i; j++){
                    o1+=Character.toString(seq[j]);
                }
                operand1=Double.parseDouble(o1);
                for(int k=i+1; k<seq.length; k++){
                    if(seq[k]=='='){
                        outflag=1;
                        operand2=Double.parseDouble(o2);
                        if(seq[i]=='+'){
                            output=operand1+operand2;
                        }else if(seq[i]=='-'){
                            output=operand1-operand2;
                        }else if(seq[i]=='/'){
                            output=operand1/operand2;
                        }else if(seq[i]=='X'){
                            output=operand1*operand2;
                        }
                        break outerloop;
                    }else{
                        o2+=Character.toString(seq[k]);
                    }
                }
            }
        }

        // Check if output is available and print the output
        if(outflag==1)
            System.out.print(output);
}// The main() method ends here.

// A method that takes a character as input and returns the corresponding GUI character
    static char gui_map(char in){
        char out = 'N';// N = Null/Empty
        char gm[][]={{'a','.'}
                    ,{'b','0'}
                    ,{'c','='}
                    ,{'d','+'}
```

```
                    ,{'d','0'}
                    ,{'e','1'}
                    ,{'f','2'}
                    ,{'g','3'}
                    ,{'h','-'}
                    ,{'i','4'}
                    ,{'j','5'}
                    ,{'k','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;
    }
}
```