Assignment 2

How-To document

Name: Mina Henen Shafik Henen

ID: 18011939

Calculator

User guide

My calculator is running on local host 8095 and its link after running spring boot program is http://localhost:8095/calculator

01 User interface

02 Buttons actions

03 Some notes and assumptions

User interface:

My calculator interface is very simple as it consists from 23 button and a label to display.

Every button is a web button and it must be clicked to be used and activate its function that I don't accept any input from keyboard only the button must be clicked, Ex: pressing "9" on keyboard doesn't mean that button '9' is clicked and it is meaningless for the calculator.

There are:

- 10 buttons for digits from 0 to 9.
- 4 buttons for binary operations (+,-,*,/).
- 4 buttons for unary operations (x^2,$\sqrt{}$,%,$^1/_x$).
- A button for equal (=).
- A button for decimal point (.).
- A button for deleting (⌫).
- A button for negative numbers ($^+/_-$).
- A button for clear the screen (CE).

Buttons actions:

The numbers buttons add the number to the screen.

The decimal point button add decimal point to the number on the screen.

The negative button is used to identify that this number is negative.

The equal button is used to display the result of the calculation of binary operations only and clear the operand in the memory of calculator.

The unary operations buttons are doing the operation of the button to the number on the screen in this moment.

The deleting button is used to delete the last character in the screen.

The binary operations buttons are doing the operation of the button.

The clearing button clears the screen and the calculator memory.

Some notes and assumptions:

The calculator can save one number and one operand only in memory.

The calculator deals with the zero in the beginning of writing as a number as if it displays 0 and I clicked x then clicked 3 the answer will be 0x3=0.

The negative button is available only in the beginning of writing new number.

The decimal button is only allowed once to be clicked as you can add one decimal point only to every number.

Regarding to the equal button if there is no new operand in the calculator memory clicking on equal button is meaningless and doesn't change anything.

Regarding to the unary operations buttons it only react with the number on the screen and it clears the previous number and operand in the calculator memory if there exist any of them.

Regarding to the binary operations buttons it saves the number before clicking on it and do the operation with the new number entered, if there exist an operation before these buttons act like equal button only.

To write a new number the screen must be cleared or it will continue writing on the number on it as if it show 25 and I want to write 3 I must use clear button to remove 25 or it will write 253.

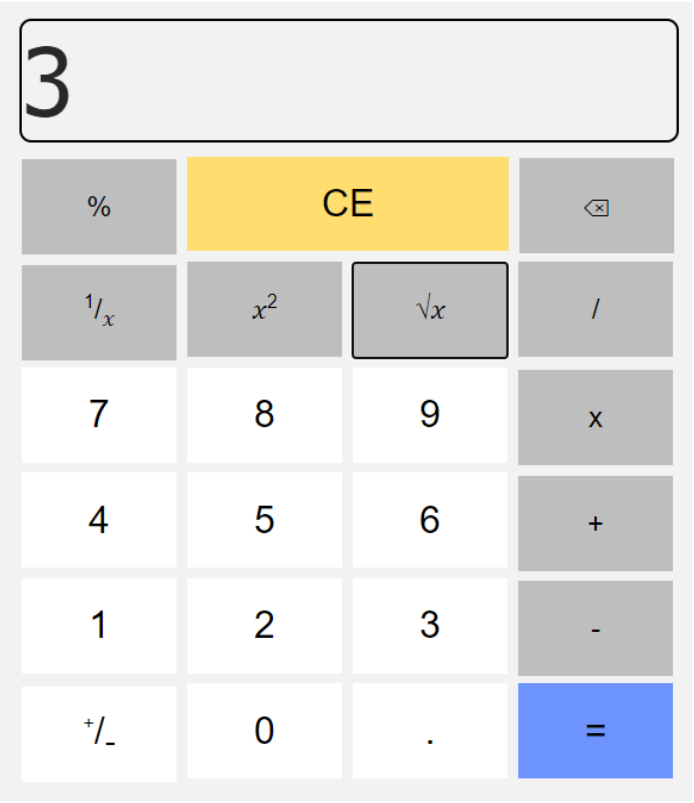
When dividing by 0 it displays E then you should press the button clear to remove the E or it will discard the next operation.

All the calculations are done server-side.

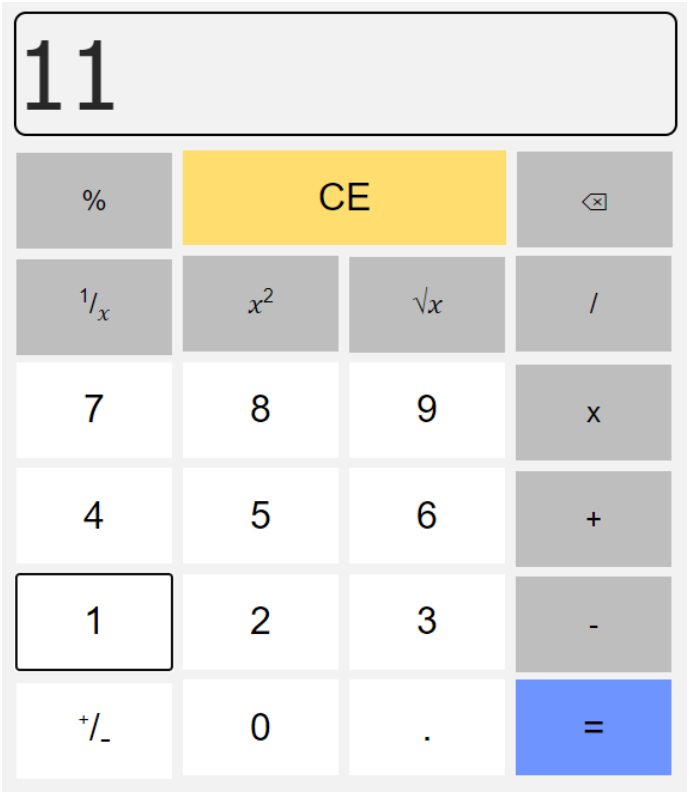
The calculator is dealing with float data type so its limits are $3.40282347 \times 10^{38}$, $1.40239846 \times 10^{-45}$.

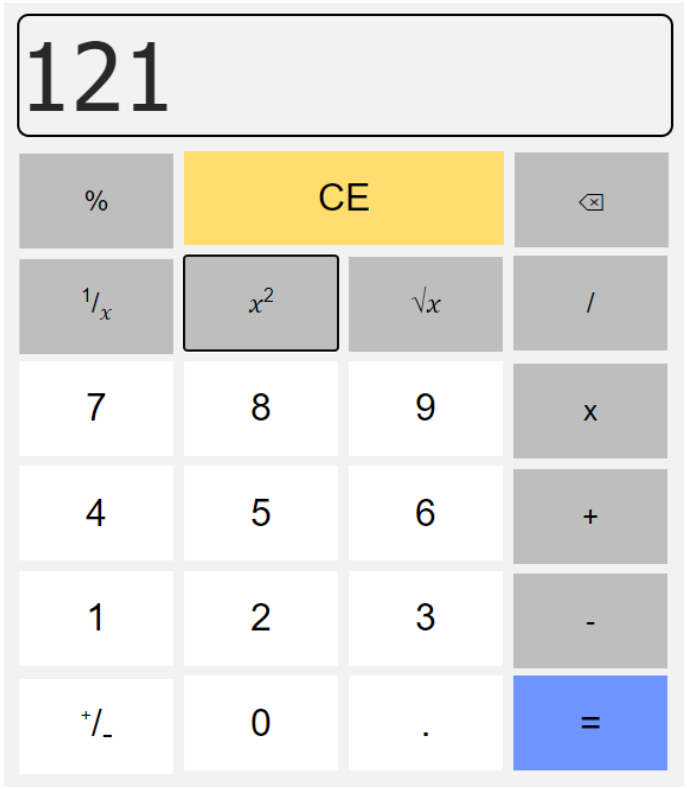
Sample runs

Root(9):



11^2:



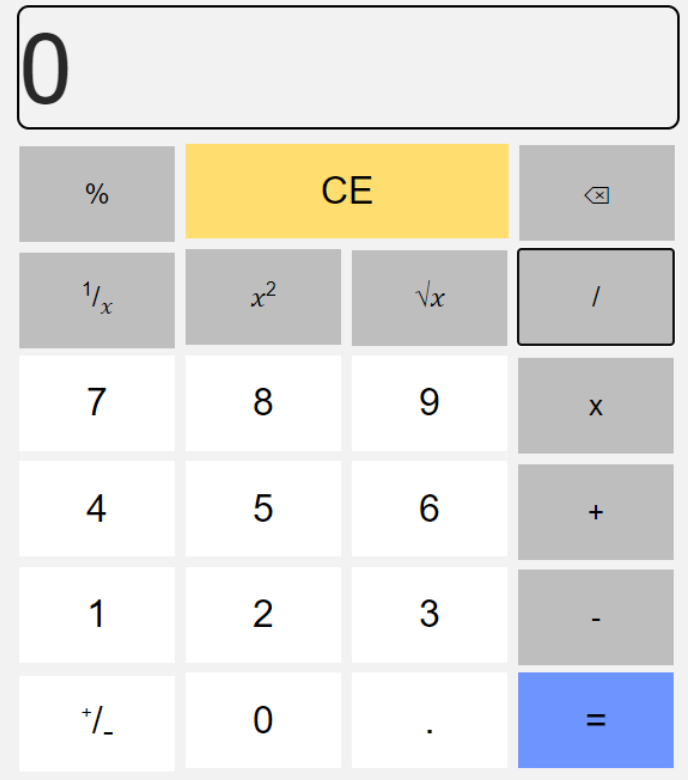


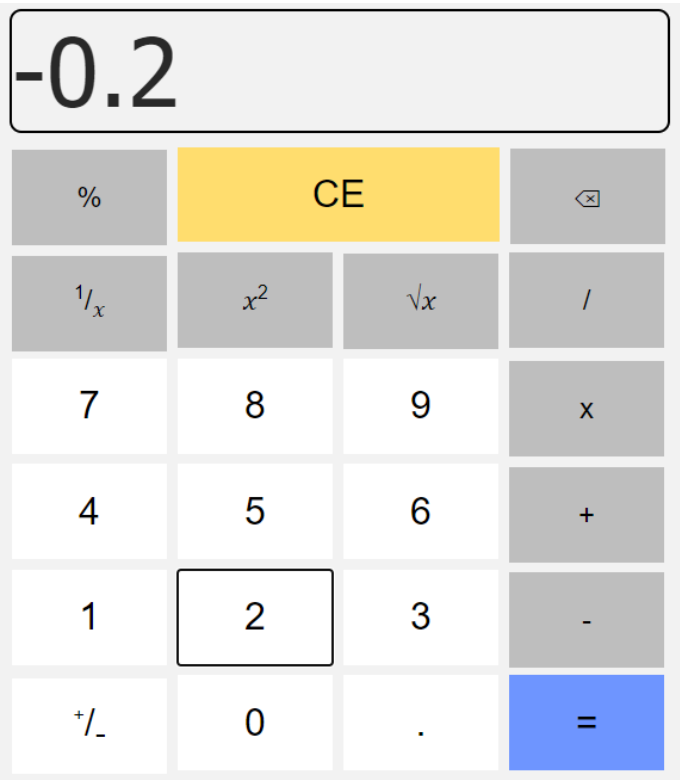
3x236:

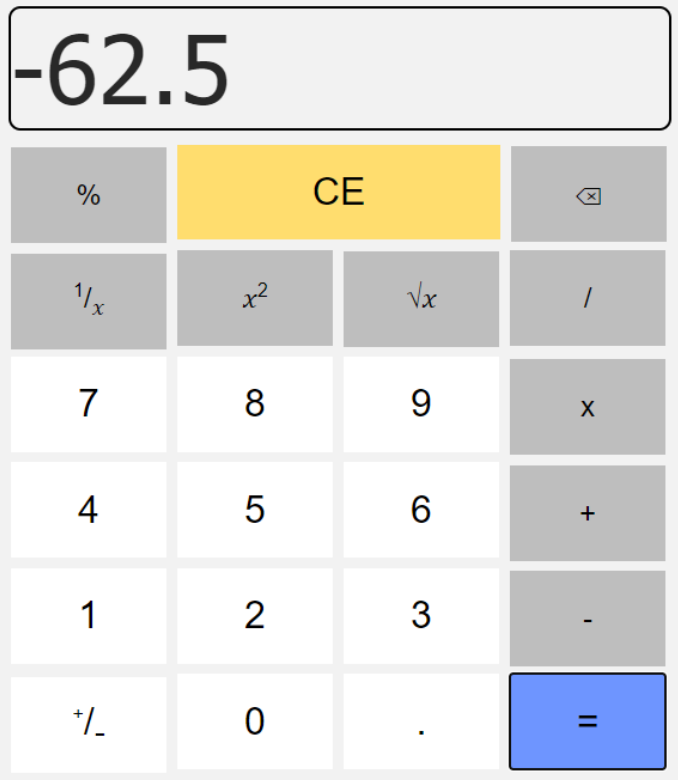

3
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=
0
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=
236
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=
708
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=

12.5/-0.2:


12.5
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=


0
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=


-0.2
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=


-62.5
%
CE
⌫
1/x
x²
√x
/
7
8
9
x
4
5
6
+
1
2
3
-
+/-
0
.
=