

Programming 2 lab2

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It is required to design simple web calculator which is similar to windows calculator:

All buttons are web buttons

Design specification:

This calculator is based on two types of operations:

Two operands:

(+, -, *, /)

One operand:

(%, sqrt, pow 2, 1/x)

Assumptions:

User needs to determine the sign before writing number if positive write it only but if negative press (+/-) before it.

Single operand operations are written after number like (8 pow(2)) not before number.

Each operation is done separately you can't calculate $(x^2)^{0.5}$ in a single instruction

User need to be aware of order of precedence of operations

User is limited to write calculations in two operands form or one operand form if he wants to perform longer operations . The calculator by default keeps the last answer and he will be able to continue calculations (more illustration in How to)

How to:

User starts by typing the number he wants then if he wants to perform a single operand operation, he pressed the corresponded button and press =

If he wants to perform two operands operation, he writes the first operand and press the corresponding button then write the second operand then press =

Note :

The two operands may have a single operand operation on them like

$$3 \text{ pow}(2) + 4 \text{ pow}(2)$$

Ans is:

$$25$$

So it doesn't matter what are the two operands unless they are written in wrong form (example in assumptions) like:

$$15 \text{ pow}(2) \text{ pow}(0.5) + 6$$

$$E$$

Long form calculations:

For example:

1+4+5



1+4

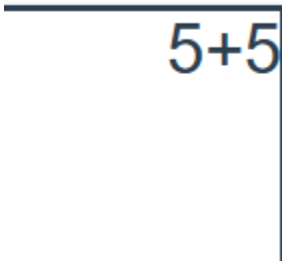
User starts by 1+4

Press =



5

Calculator save it and he can continue by typing + then 5



5+5

Press =



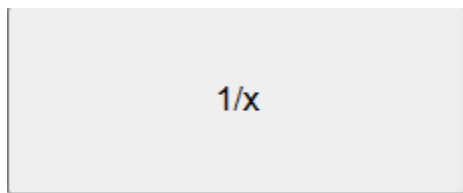
10

If you need to start new calculations press C or CE

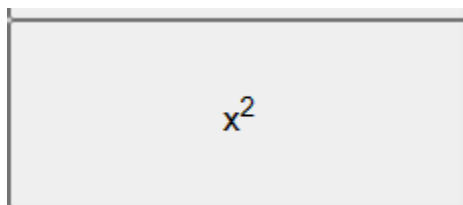
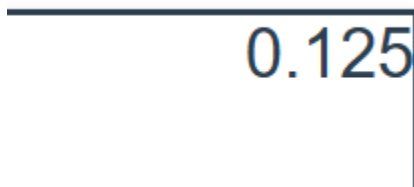
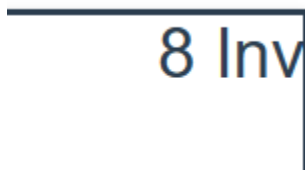
Very important note :

If the answer of any operation is (E) you need to press (C or CE) before typing any new operation

Important Buttons:



returns multiplicative inverse of a number



number raised to power 2



81

\sqrt{x}

square root

81 pow(0.5)

9

%

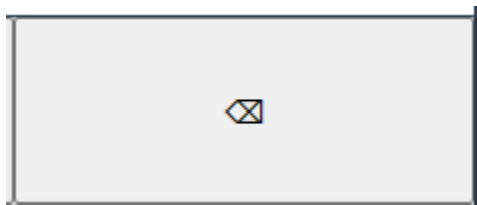
number divided by 100 (main usage is to find a percentage of some number)

25%*300

75



Both used to clear screen and the calculations result (return the calculator to its starting point)



Clear screen character by character



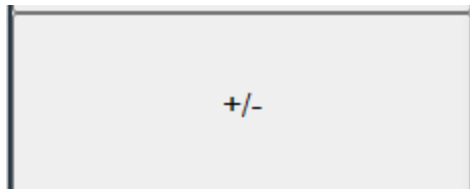
Add floating point to number

Things like more than one floating point in a single number will be an error in calculations

2.2.3+9

Ans:

E



Determine a negative number (must be pressed before number)

Note:

I need to install Axios and used it when calling backend

((npm install axios))

```
equal() {  
  console.log(typeof this.displayContent);  
  let q=this.displayContent;  
  q = q.replace(/\+/g, "add");  
  q = q.replace("\u2013", "sub");  
  q = q.replace(/\*/g, "multiply");  
  q = q.replace(/\/\//g, "div");  
  this.z=1;  
  
  axios  
    .post('http://localhost:8081/calculate', {  
      expression:q  
    })  
    .then((response)=>{  
      this.displayContent=response.data.toString();  
      console.log(response.data);  
    })  
    .catch( (error)=>{  
      console.log(error);  
    });  
},
```