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2001032

OOP Assignment 2

Problem statement

Design and implement a web calculator by Angular & Spring boot where the calculations are done in the back end
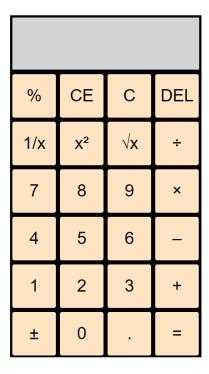
Assumptions

➢ Any mathematical expression consists of 3 parts:
- Operand1
- Operator
- Operand2

A mathematical expression like (-3+5) contains 3 parts where -3 is operand1, + is the operator and 5 is operand2

➢ Division by zero does not indicate infinity but it indicates an error

➢ When entering an unary operator its operand will be evaluated and displayed automatically

Design

- The screen is an <td> element .

- To put each four button in a separate row simply we put each four button in a separate <div> element and also the screen.

Solution

- To evaluate any expression a JSON object called expression which contains (operand1, operand2, operator) is sent through a http request to the server side and evaluated then the result is returned and displayed on our calculator screen where the user can continue writing expressions where we consider the returned result as operand1 for the new operation but sometimes in unary operations we consider the returned result as operand2.

- In case of an unary operator one of the operands in the JSON object is useless

- The http request is sent from the Angular by **post()** method and is received by Spring boot by the annotation **@RequestBody** where the JSON is received in a java object which have the same attributes of the JSON

- In the back end implementation we consider a class called Operations which contains the functions of the 8 different operations provided by our calculator and the suitable operation function is executed based on the received operator

- We implemented Dependency Injections in the AppComponent and other services in order to allow sending and receiving messages between them