OOP 2024S HW12 (due to 5/20 23:59)

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Problem

Reverse Polish Notation (RPN) or postfix notation is a format to specify mathematical expressions. In RPN the operator comes after the operands instead of the more common format in which the operator is between the operands (this is called infix notation). Starting with an empty stack, a RPN calculator can be implemented with the following rules:

- If a number is input, push it on the stack.
- If + is input, then pop the last two operands off the stack, add them, and push the result on the stack.
- If - is input, then pop value1, pop value2, then push value2 - value1 on the stack.
- If * is input, then pop the last two operands off the stack, multiply them, and push the result on the stack.
- If / is input, then pop value1, pop value2, then push value2 / value1 on the stack.
- If q is input, then stop inputting values, print out the top of the stack, and exit the program.

Use the stack template class to implement a RPN calculator. Output an appropriate error message if there are not two operands on the stack when given an operator.

Test case

Input:

Use argv to read the input filename. Input numbers are all integers.

```
10
2
3
+
-
2
*
5
/
q
```

***Results of a / b are always integers, and the condition of / 0 will not happen.

Output:

Use cout to output your result. No newline character is needed at the end.

```
The top of the stack is: 2
```

If any error happens, print out `ERROR!!!` and exit the program.

Command

compile

```
g++ main.cpp -o Hw12
```

execute

```
./Hw12 input1.txt
```

OJ

/home/share/demo_OOP112_2 Hw 12

Submission

Naming your .cpp file studentID_HW12.cpp and submit it on newE3