

assignment 3

Files:

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balance.h: check if an expression is balanced by using 3 principal functions:

is_open(char ch): checks if parentheses are opened.

is_close(char ch): checks if parentheses are closed.

is_balanced(char ch): checks if an expression is balanced.

```
which program do you want to execute, enter 1 for program 1, 2 for program 2 and 3 for program 3: 1
Enter an expression
is balanced
Enter another expression: (2+3)*[3+7]
(2+3)*[3+7] is balanced
Enter another expression: (4/7
(4/7 is not balanced
Enter another expression:

C:\Users\nour\Desktop\DATA_STRUCTURE\assignment3_2\x64\Debug\assignment3_2.exe (process 14676) exited with code 0.
Press any key to close this window . . .
```

infix_to_postfix.h: contains the definition of Infix_to_Postfix class

infix_to_postfix.cpp: contains the functions implementation of Infix_to_Postfix class.

convert(const string& expression): returns a postfix expression.

process_operator(char op) function: determine whether to push an operator into a stack or to pop it by checking the precedence of +, -, *, /, (and).

```
which program do you want to execute, enter 1 for program 1, 2 for program 2 and 3 for program 3: 2
Enter an expression to be converted
==
Enter next expression: 2*(2+4)
== 2*(2+4)
Enter next expression: 4+6
== 4+6
Enter next expression: 2*(4+5) +(3*9)
== 2*(4+5) +
Enter next expression:

C:\Users\nour\Desktop\DATA_STRUCTURE\assignment3_2\x64\Debug\assignment3_2.exe (process 14140) exited with code 0.
Press any key to close this window . . .
```

note: infix_to_postfix does not work as expected. I checked the operator_process and convert functions but I didn't catch the error.

queue.h: contains the definition of a queue class which contains the member functions: push, pop, empty, size and front. I'm using the standard template container <list> to hold the contents of the class.

list_queue.tc: contains the queue's implementation using the STD list.

```
which program do you want to execute, enter 1 for program 1, 2 for program 2 and 3 for program 3: 3
Select an operation on costumer queue
0: push
1: front
2: pop
3: size
4: quit
0
Enter new costumer name
: Tom
  added to the line
Select an operation on costumer queue
0: push
1: front
2: pop
3: size
4: quit
0
Enter new costumer name
: Steve
  added to the line
Select an operation on costumer queue
0: push
1: front
2: pop
3: size
4: quit
0
Enter new costumer name
: Eddie
  added to the line
Select an operation on costumer queue
0: push
1: front
2: pop
3: size
4: quit
2
Tom removed from the line
Select an operation on costumer queue
```

syntax_error.h: define a derived class Syntax_Error from invalid_argument base class.

main1.cpp: Test the different program by using class objects