ASSIGNMENT 2

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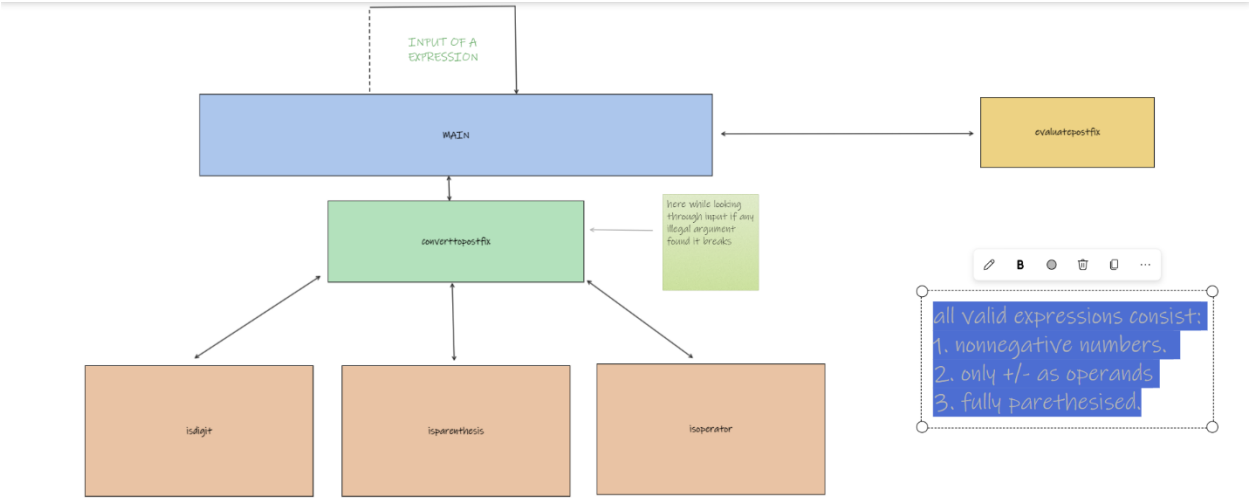
Program Description:

a. High-level dataflow diagram.



As mentioned above, the main label calls converttopostfix which there read each character in the given string and converts it into postfix, this is the label where we check edge cases and break the program if it is not fully parenthesized, has a non-negative number or an operator next to an operator.

This postfix expression is now sent to evaluate postfix as argument, and it reads through each character of this and performs arithmetic operations and returns the evaluated value.

Test Documentation:

a. How you tested your program:

Have used given test expression and few errored expressions to show that errors are handled.

Test expressions:

i. (1+2)

j. (1-(3+5))

k. ((5-1) +3)

l. (4-(1-2))

m. ((6-2) +(2-7))

n. (((2+1)-5) +(8-4))

o. ((8+1) - (((3-1) +2)-3))

p. (1++2) ** illegal arguments, returns the same.

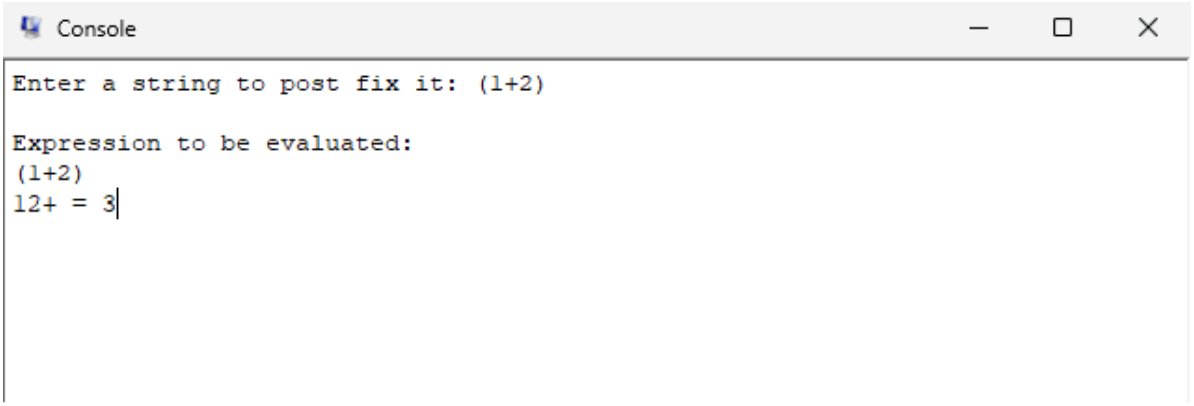
q. (1+2 ** illegal arguments, returns the same.

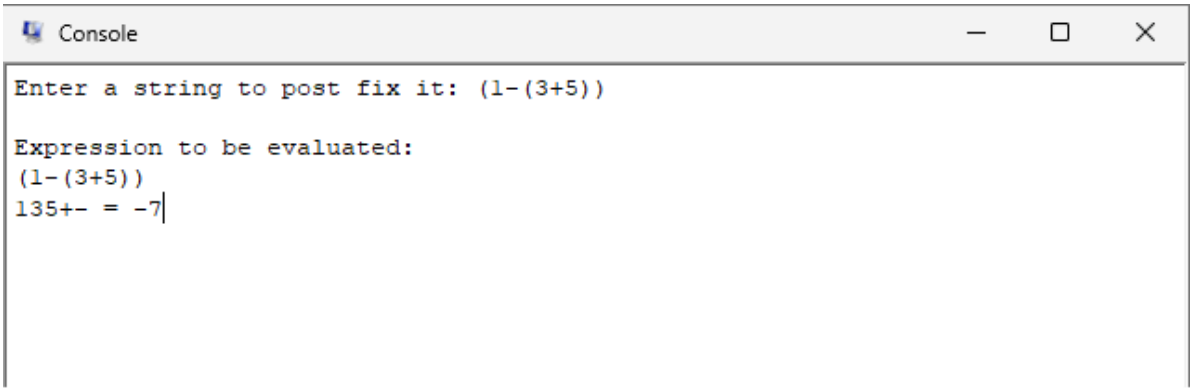
r. (1- - 2) ** illegal arguments, returns the same.

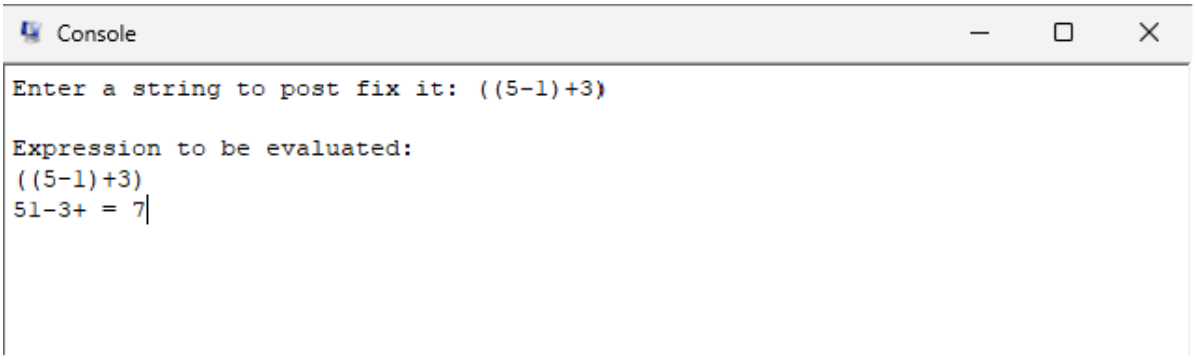
s. (-1+2) ** illegal arguments, returns the same.

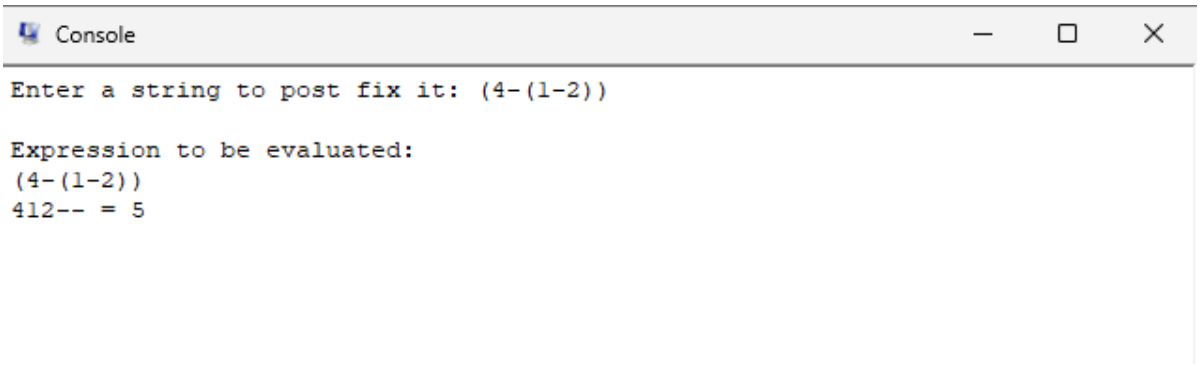
b. Testing outputs:

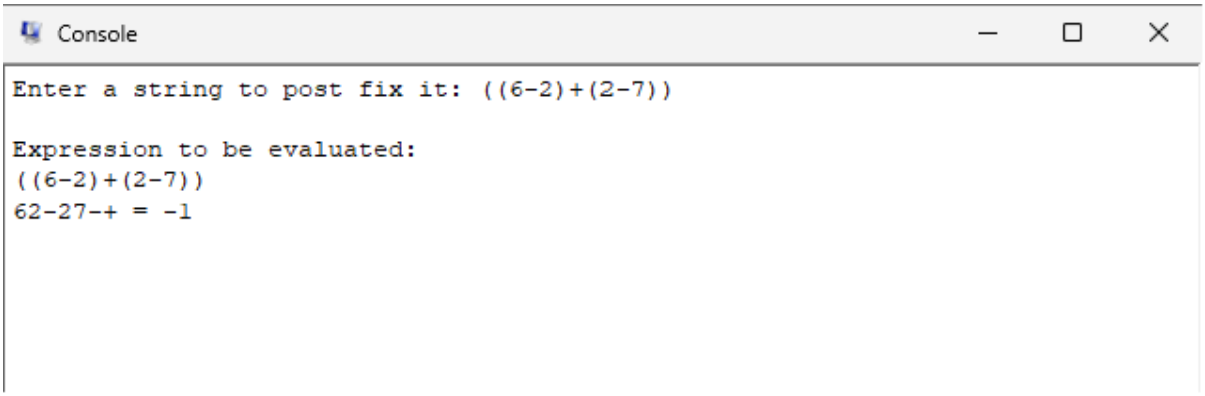
Given expression outputs:

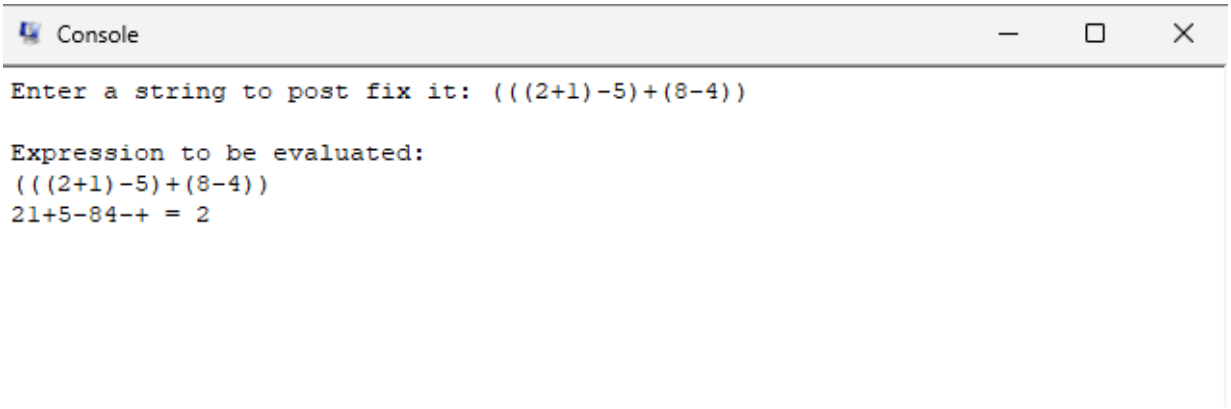


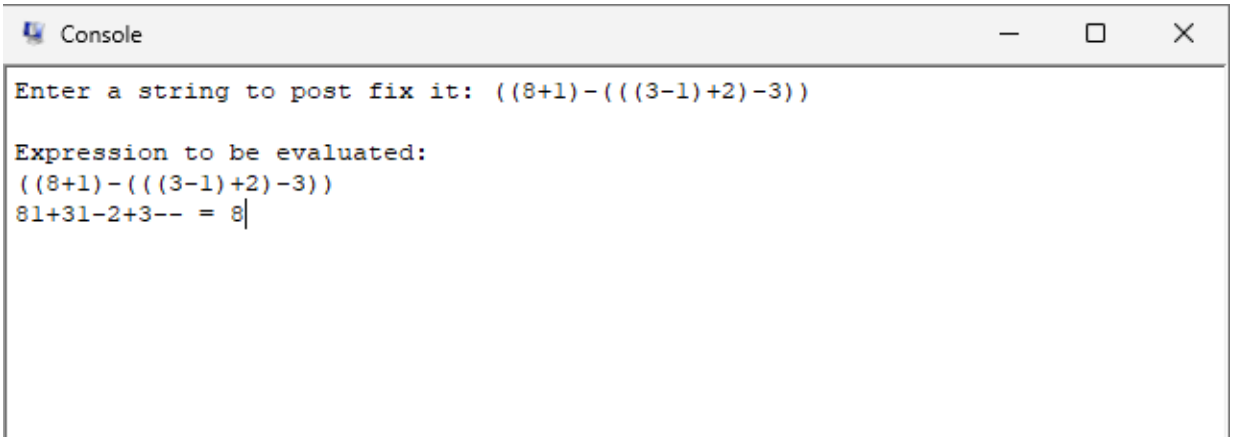





Console
Enter a string to post fix it: (4-(1-2))
Expression to be evaluated:
(4-(1-2))
412-- = 5

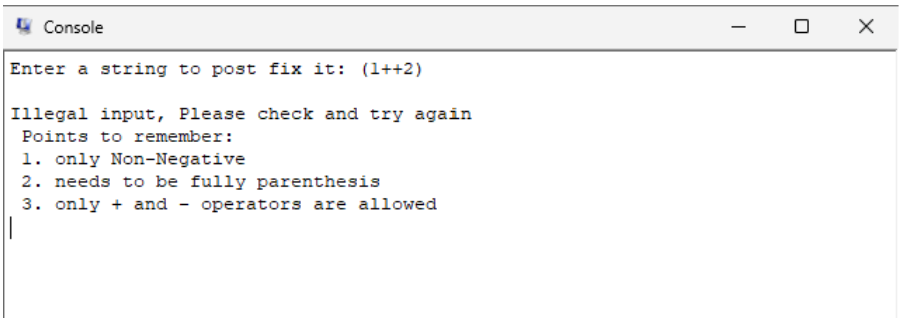

Console
Enter a string to post fix it: ((6-2)+(2-7))
Expression to be evaluated:
((6-2)+(2-7))
62-27-+ = -1

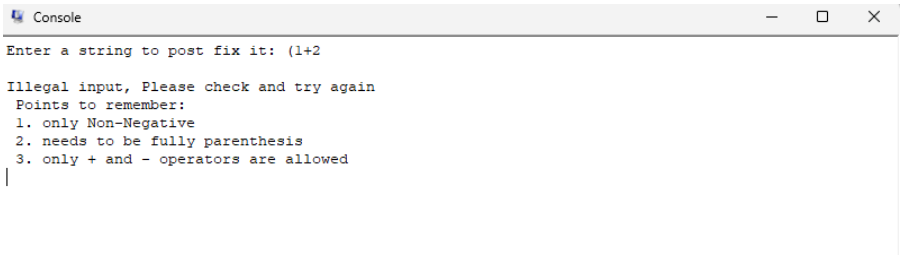

Console
Enter a string to post fix it: (((2+1)-5)+(8-4))
Expression to be evaluated:
(((2+1)-5)+(8-4))
21+5-84-+ = 2

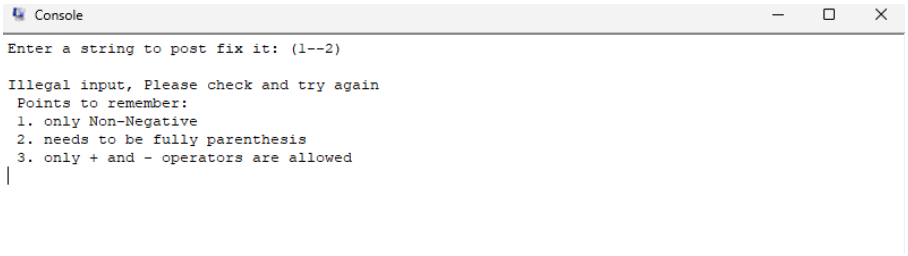

Console
Enter a string to post fix it: ((8+1)-(((3-1)+2)-3))
Expression to be evaluated:
((8+1)-(((3-1)+2)-3))
81+31-2+3-- = 8

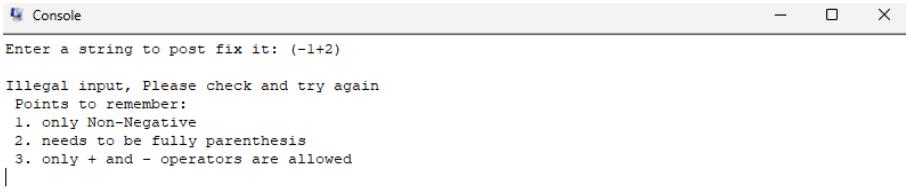
Illegal expression handling:

These cases are proof of code correctness, we handle if an entered input has wrong expression, not fully parenthesized or has a negative number.









User Documentation:

a. How to run your program:

In my submission, the file named 504_Assignment2_saivishnuanudeepkadiyala.asm needs to be loaded into QTSPIM and once the console prompts *"Enter a string to post fix it:"* please enter desired expression. This should return the output of the given expression accordingly.

The user input is the only parameter that is expected to be entered.