

CSC 304

Assignment #2

due Wednesday February 16th at 11:59 PM

Design a python class `Expression` with two fields `_infix` and `_postfix` that contains a constructor `__init__(self, input, direction)` and three methods

1. `in_to_post()`
2. `post_to_in()`
3. `evaluate()`

The first method transforms the local infix expression to postfix, stores it in `_postfix` and returns it from the method. The second method is the inverse: it transforms the local postfix expression to infix, stores it in `_infix`, and returns it as a string. The method `evaluate()` returns the value of the expression.

Your `main()` should display a prompt to the user, give him/her the opportunity to enter a string in either notation (hence the two different directions in the constructor) to be transformed to the other, and evaluate the result. After entering the expression, the user should be prompted for `direction` which should be 0 if user enters an infix expression, and 1 if user enters a postfix expression. You may use the `ArrayStack` class from lecture 6 to perform your conversions and evaluations. Your stack class (`ArrayStack`, or otherwise) should be a private field of your `Expression` class.

If your program has any fancy features, such as allowing multiple-digit numbers, checking for illegal characters in the input, adding some extra operators, or others, please make that clear in a comment at the beginning of your program. Also, when you display the menu of options to the user, make it clear how they should enter the expressions (i.e. leave spaces around operators etc..)

Don't forget that the mark includes:

- a working program
- a well-tested program
- and any extras you add!