Lab3

September 19, 2023

1 The Tasks

1.1 Coding

1. Write code for Infix to postfix conversion by using stack (The code should be able to treat with parenthesis, braces and at least the following operators: +, -, ×, /, mod).
2. Write code for Postfix expression evaluation by using stack(Integer division preserves only the integer part).

1.2 Experiment

Verify the code through experiments and run these test examples.(Screenshots, txt files, Word, Excel, or markdowm can be used to submit experimental results)

For code 01,convert the following infix expressions:

(a): (A + B) * C
(b): A + (B - C)
(c): A * (B + C) / D
(d): (A + B) * (C - D)
(e): A + B * C - D / E
(f): (A * B) + (C / D) - E
(g): (A + B) / (C + D) * E
(h): A * (B + C) - (D * E)
(i): (A + B) * (C - D) / (E + F)
(j): A * (B + (C * (D - (E / (F + (G * H)))))) / I

Submit in the following format:

Infix: A + B
Postfix: AB+

For code 02,evaluate the following postfix expressions:

(a): 3 5 + 2 7 * /
(b): 5 1 2 + 4 * + 3 - 7 4 5 - + +
(c): 8 2 / 3 * 4 5 * 2 * 7 1 + - +
(d): 10 2 / 2 7 * + 5 2 * 1 1 / - 3 2 + 7 1 / 8 - +
(e): 10 3 / 2 7 * + 5 2 * 1 4 / - 3 2 + 7 4 / 8 - +
(f): 25 5 - 4 3 + 2 6 * 7 - 8 2 / 9 * 10 +
(g): 6 2 * 3 2 / 5 4 * 8 3 / 1 7 - 5 + 9 2 * -
(h): 7 3 * 4 2 / 5 + 6 8 - 9 3 / 2 * 4 + - 5 1 2 + 4 * 3 - + +
(i): 8 2 / 3 * 4 5 * 2 / 7 1 + - 6 3 / 2 * + 10 3 / 2 7 * + 5 2 * 1 4 / - 3 2 + 7 4 / 8 - 6 2 /

(j): 8 2 / 3 * 4 5 * 2 / 7 1 + - 6 3 / 2 * + 9 8 / 3 + 7 6 * 4 9 / 1 5 - + - + 3 4 * 2 7 / 5 + 6 8 - 9 3 / 2 * 4 + - + 5 2 * 3 4 / 1 + 7 - 8 9 * 3 / 2 + 6 1 / 5 7 * + 4 - 2 + 3 * - 4 2 / 8 5 + 6 7 * 3 - 9 1 / 4 + 2 * - 5 8 / 3 6 + 7 2 / 1 9 * 4 - + 5 * -

Submit in the following format:
Postfix: 1 2 +
Result: 3

1.3 Documentation

Document the experimental results and analysis.

2 Points for Attention

(1) For the implementation of these algorithms, you are free to select a programming language of your choice.
(2) Kindly upload the source code files along with their associated documentation in a compressed ZIP format to the elearning system for assessment.
(3)Your document should be submitted in electronic format whenever possible. If you have a handwritten document, please ensure that the writing is neat and the layout is well-organized. The document format should be either Word, PDF, or Markdown.
(4) The deadline of this lab is 23:59:59 on Spetember 22.
(5) The naming format for the file should be "lab3-StudentID-Name," and make sure to compress all the files into a single compressed folder.
(6) If you have any questions please feel free to contact teaching assistants.