Name : Mofiur Rahman
Course code : CSE 241.1
Assignment No : 2

Subject Data Stuctures
Date 02-10-2023 Time 8.00 PM

question : 01

→ write an algorithm that converts any infix ~~form~~ expression to Prefix form. write this algorithm in Pseudocode.

Algorithm in Pseudocode :

1. Initialize an empty stack called 'stack'.
2. Initialize an empty string called 'prefix'.
3. Reverse the input infix expression.
4. For each character 'ch' in the reversed infix expression:
   a. If 'ch' is an operand (a number or a variable)
      i. Append 'ch' to the 'Prifix' string.
   b. If 'ch' is an operator:
      i. while 'stack' is not empty and 'ch' has lower Precedence than the top operator on stack:
         → Pop the top operator from 'stack' and append at to Prifix.
      ii. Push 'ch' onto stack.

P.t.o →

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c. If 'ch' is an opening parenthesis '(':
   i. while the top of 'stack' is not a closing parenthesis ')':
      → Pop the top operator from 'stack' and append it to 'Prefix'.
   ii. Pop the opening parenthesis from 'stack'.
d. If 'ch' is a closing parentesis ')':
   i. Push 'ch' onto 'stack'.

5. while 'stack is not empty:
   a. Pop the top operator from 'stack' and apperd it to 'Prefix'.
6. Reverse the 'Prefix' string to get the final Prefix expression.
7. The resulting 'Prefix' string is the Prefix expression.

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→ create a Binary search Tree with the following number (equal number go to the left side).

12	65	23	1	-53	4	67	23	67	8	96	23	25	1	-89