Postfix se Prefix Conversion using Stack

Introduction

Postfix notation (Reverse Polish Notation) ek aisa mathematical notation hai jisme operator sabhi operands ke baad aata hai. Prefix notation (Polish Notation) me operator sabse pehle aata hai, phir operands likhe jate hain. Postfix expression ko Prefix me convert karne ke liye ek stack ka use kiya jata hai. Iss document me C++ code ka logic, dry run, aur step-by-step explanation di gayi hai.

Thought Process

1. **Stack ka Use:**
   - Ek stack use hota hai jo operands aur expressions ko store karta hai.
   - Agar ek operator milta hai, toh top ke do operands pop hote hain aur ek prefix expression form karke stack me wapas push kiya jata hai.

2. **Postfix Expression Traverse Karna:**
   - Agar ek digit (operand) mile, toh usko stack me push karo.
   - Agar ek operator mile:
     - Stack se top ke do elements pop karo.
     - Unhe operator ke saath ek prefix expression me convert karo.
     - Naya expression wapas stack me push karo.

3. **Final Result:**
   - Pura postfix expression process hone ke baad stack me sirf ek element bachega jo final prefix expression hoga.

Corrected Dry Run

Example 1
Input: `126+4*8/+3-`

Step	Stack Content	Operation
1	1	Push 1
2	1, 2	Push 2
3	1, 2, 6	Push 6
4	1, +26	+ 2 6
5	1, +26, 4	Push 4
6	1, +26, 4, 8	Push 8

7	1, +26, *48	* 4 8
8	1, /+26*48	/ +26 *48
9	1, /+26*48, 3	Push 3
10	-+1/*+26483	- +1 / * +2648 3

Output: `- + 1 / * + 2 6 4 8 3`