Assignment 3 Question 5

#include <iostream>

#include <stack>

#include <string>

using namespace std;

// Helper: check if a character is a digit

bool isDigit(char c) {

return (c >= '0' && c <= '9');

}

// Evaluate a postfix expression (single-digit operands only)

int evaluatePostfix(const string &exp) {

stack<int> st;

for (int i = 0; i < exp.length(); i++) {

char c = exp[i];

// skip spaces

if (c == ' ') continue;

// If operand (digit), push to stack

if (isDigit(c)) {

st.push(c - '0'); // convert char '5' → int 5

}

// Operator encountered

else {

int val2 = st.top(); st.pop();

int val1 = st.top(); st.pop();

switch (c) {

case '+': st.push(val1 + val2); break;

case '-': st.push(val1 - val2); break;

case '\*': st.push(val1 \* val2); break;

case '/': st.push(val1 / val2); break;

}

}

}

return st.top(); // final result

}

int main() {

string exp;

cout << "Enter postfix expression (single-digit numbers, no spaces needed or with spaces): ";

getline(cin, exp);

cout << "Result = " << evaluatePostfix(exp) << endl;

return 0;

}