//ASHISH WAGHMODE

// ROLL NO - 2174

#include<iostream>

#include<stack>

using namespace std;

//Function to return precedence of operators

int prec(char c)

{

if(c == '^')

return 3;

else if(c == '\*'|| c == '/')

return 2;

else if(c == '+'|| c == '-')

return 1;

else

return-1;

}

// The main function to convert infix expression

//to postfix expression

void infixToPostfix(string s)

{

stack<char>st;

st.push('N');

int l = s.length();

string ns;

for(int i = 0; i < l; i++)

{

// If the scanned character is

// an operand, add it to output string.

if((s[i] >= 'a'&& s[i] <= 'z') ||

(s[i] >= 'A'&& s[i] <= 'Z'))

ns+=s[i];

// If the scanned character is an

// ‘(‘, push it to the stack.

else if(s[i] == '(')

st.push('(');

// If the scanned character is an ‘)’,

// pop and to output string from the stack

// until an ‘(‘ is encountered.

else if(s[i] == ')')

{

while(st.top() != 'N'&&st.top() != '(')

{

char c = st.top();

st.pop();

ns += c;

}

if(st.top() == '(')

{

char c = st.top();

st.pop();

}

}

//If an operator is scanned

else{

while(st.top() != 'N'&&prec(s[i]) <=

prec(st.top()))

{

char c = st.top();

st.pop();

ns += c;

}

st.push(s[i]);

}

}

// Pop all the remaining elements from the stack

while(st.top() != 'N')

{

char c = st.top();

st.pop();

ns += c;

}

cout<< ns <<endl;

}

//Driver program to test above functions

int main()

{

string exp= "a+b\*(c^d-e)^(f+g\*h)-i";

infixToPostfix(exp);

return 0;

}

/\* \*\*\*\*\*\*\*\*\*\*\*Output\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

abcd^e-fgh\*+^\*+i-

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* \*/