3]

#include<stdio.h>

#include<string.h>

#define MAX 100

char stack[MAX];

int top=-1;

void push(char ch){

if (top == MAX-1){

printf("Stack Overflow!\n");

}else{

stack[++top]=ch;

}

}

char pop(){

if(top == -1){

return '\0';

}else{

return stack[top--];

}

}

int isMatchingPair(char opening,char closing) {

if (opening == '(' && closing == ')') return 1;

if (opening == '[' && closing == ']') return 1;

if (opening == '{' && closing == '}') return 1;

return 0;

}

int isBalanced(char exp[]){

for(int i = 0; exp[i] != '\0'; i++){

char ch=exp[i];

if(ch == '(' || ch == '[' || ch == '{'){

push(ch);

}

else if(ch == ')' || ch == ']' || ch == '}'){

if(top == -1){

return 0;

}

char popped=pop();

if(!isMatchingPair(popped, ch)){

return 0;

}

}

}

return (top == -1);

}

int main(){

char exp[MAX];

printf("Enter an expression: ");

scanf("%s", exp);

if(isBalanced(exp)){

printf("The expression has Balanced Parentheses\n");

}else{

printf("The expression has NOT Balanced Parentheses\n");}

return 0;

}

