

Lab#3-1 Parentheses Checker

Write a program to read a text file and print whether or not the parentheses are balanced.

Parentheses: “(,), [,], {, }”

Input file:

```
(A * B) + ( C * D)
(A * ( B + ( C * D + E)))
( ( A + B)
(A + B } )
( A + B ) - { C + D } - [F + G]
{ A + ( B - [C + D]) * E ) }
```

Output:

(A * B) + (C * D)	Balanced
(A * (B + (C * D + E)))	Balanced
((A + B)	Unbalanced, Left parentheses are more than right parentheses
(A + B })	Unbalanced, Mismatched parentheses are (, }
(A + B) - { C + D } - [F + G]	Balanced
(A + (B - [C + D]) * E)	Unbalanced, Right parentheses are more than left parentheses

● Algorithm 참조:

get expression(exp);

```
int check() {
    for(i=0; i<strlen(exp); i++){
        if(exp[i]=='(' || exp[i]=='{' || exp[i]=='[')    push(exp[i]);

        if(exp[i]==')' || exp[i]=='}' || exp[i]==']')

            if(stack empty) {
                print("UnBalanced ");
                print ("Right parentheses are more than left parentheses"); break;}
            else {
                temp=pop();
                if(!match(temp, exp[i])) {
                    print("UnBalanced ");
                    print("Mismatched parentheses are : ");
                    print(temp, exp[i]); break; }
            }
    }

    if(stack empty) print("Balanced ");
    else
        print ("Left parentheses are more than right parentheses); }
```