

REMOVE OUTER PARANTHESIS

★ In this problem, we are given a string which has a number of valid paranthesis. Our job is to remove the outer paranthesis of each valid pair and return the output.

Eg : Given : $((()))$
Output : $()()$

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Output : $()()()()$

Brute force solution involves the use of a Stack. Optimally, we can do this using one counter only. We iterate through the given String, if given String's i^{th} element is $($, we check for balance. If $\text{balance} > 0$, our paranthesis is not outer, so we add it to result. If the i^{th} paranthesis is $)$, we decrease balance by 1. If balance is > 0 , it means our paranthesis is not an outer one and we add it to result.

Pseudocode :

removeOuterParanthesis(str, N) {

result

balance = 0

```
for (i = 0 → N - 1) {  
    if (str[i] == "(" || ")") {  
        if (balance > 0) {  
            result += str[i]  
        }  
        balance += 1  
    } else {  
        balance -= 1  
        if (balance > 0) {  
            result += str[i]  
        }  
    }  
}
```

```
return result
```

```
}
```