32. Longest Valid Parentheses

$v[i] = 2 + v[i-1] + (i-2-v[i-1] > 0 \ ? \ v[i-2-v[i-1]] : 0)$

6: $2 + v[5] + (6-2-v[5] > 0 \ ? \ v[4] : 0$

$v[5] = 0$, $6-2-0 = 4$

$2 + 0 + v[4]$

$2 + 0 + 0 = 2$

7: $2 + v[6] + (7-2-v[6] > 0 \ ? \ v[3] : 0)$

$7-2-2 = 3$

$2 + 2 + v[3]$

$2 + 2 + 0 = 4$

X 8: $2 + v[7] + (8-2-v[7] > 0 \ ? \ v[2] : 0)$

$8-2-4 = 2$

$2 + 4 + v[2]$

$2 + 4 + 0 = 6$

X 9

10: $2 + v[9] + (10-2-v[9] > 0 \ ? \ v[8] : 0)$

$v[9] = 0$

$2 + v[9] + v[8]$

$2 + 0 + 0 = 2$

11: $2 + v[10] + (11-2-v[10] > 0 \ ? \ v[-1] : 0)$ X

$v[10] = 0$, $11-2-0 = 9$

$2 + v[10] + 0$

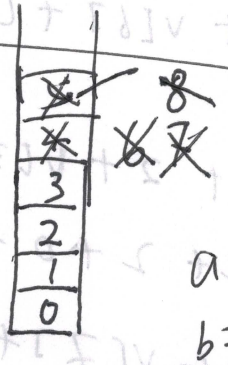
$2 + 2 + 0 = 4$

$2 + v[5]$

```
V[i] = 2 + V[i-1]
if( i - v[i] >= 0){
    v[i] += v[i-v[i]];
}
```

Stack method:

))((((( ) ( )(( ))))



a-b-1

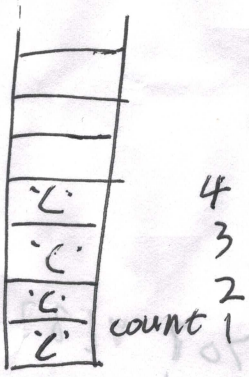
a=14 14-3-1=10

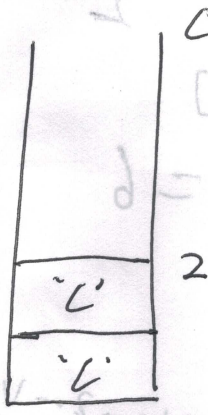
b=0 a=3

a=2 b=0

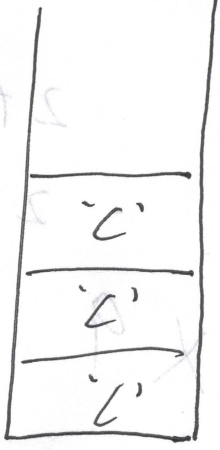
count 10

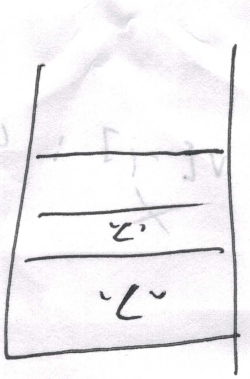
a= 13

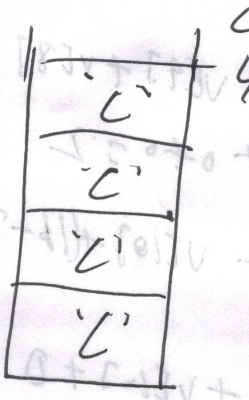


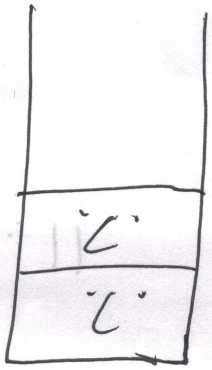


max=2









max=3

max=2

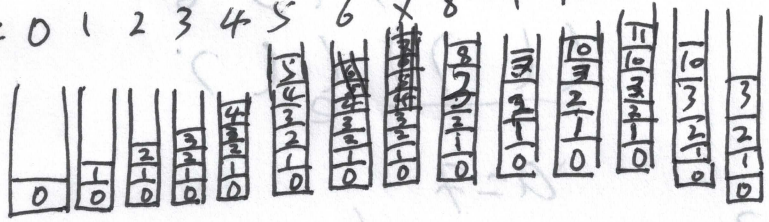
e.x. ( )(( )

( )( )

max=5

"))((((()(()(()))"

i = 0 1 2 3 4 5 6 7 8 9 10 11 12 13



a=14, b=0

while(!st.empty()){

1st cycle

b=3;

longest = max(14, 14-3-1)

= 10

a = b

= 3

}

2nd:

b=2;

longest = max(10, 3-2-1)

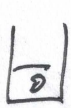
= 10

a = b

= 2

3rd:

b=1



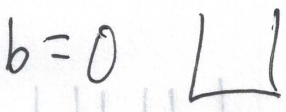
longest = max(10, 2-1-1)

= 10

a = b

= 1

4rd: b=0



longest = max(1, 2-0-1)

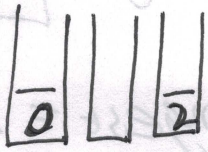
= 2

longest = max(longest, a)

= 2

10

( )
i=0 1 2



3 b=0

3-0-1=2.

3-2-1=0

(

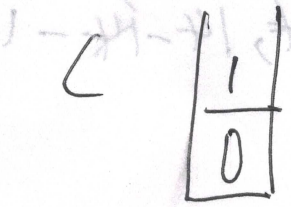
push

)

b=2

0: 3-2-1=0.

0 3



0 1 2 3 4 5 6

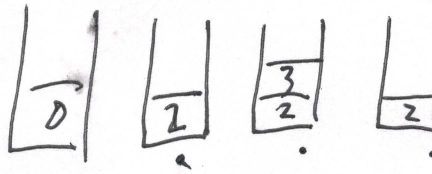
(( )) (( )

a=7

4

2

( ) (( )



a=5 b=0

2

( ) (( )

4.