Count Binary Strings

Sunday, 27 June 2021 7:25 PM

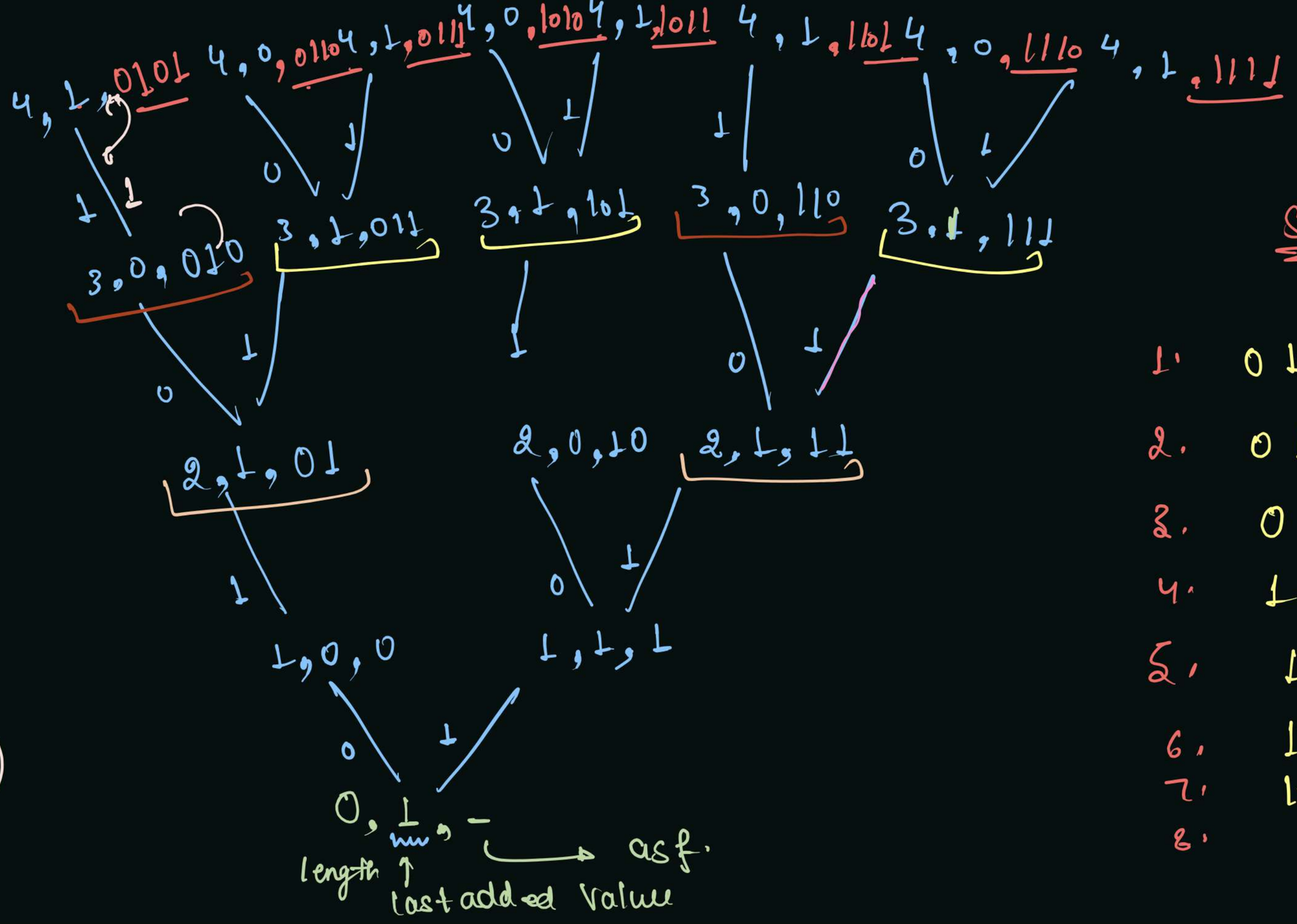
n = 4.

No. of ways to print Binary String. have no consecutive zero.

$2 \times 2 \times 2 \times 2$ — — — —

all possible.

16



strings.

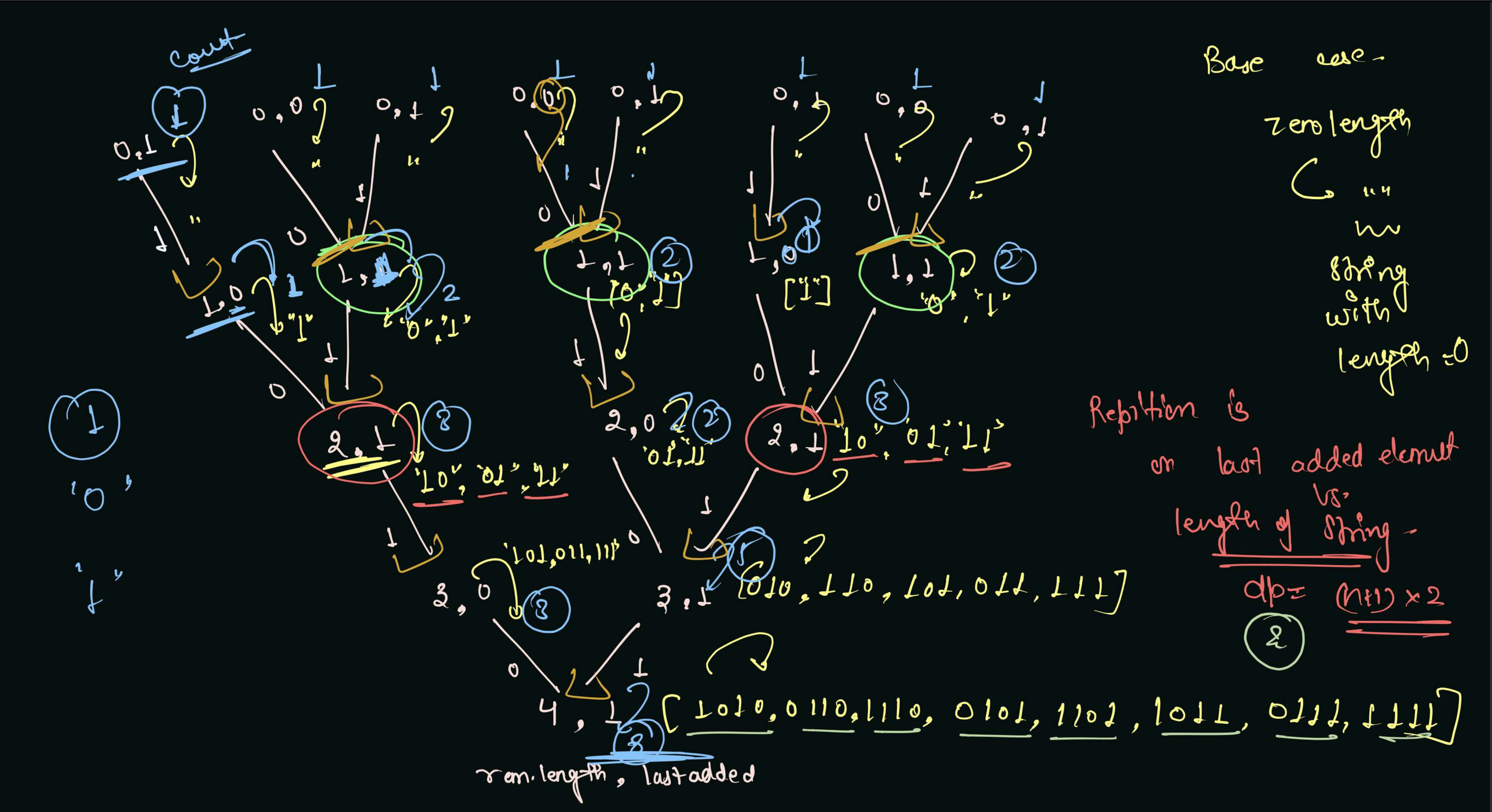
1. 0 1 0 1
2. 0 1 1 0
3. 0 1 1 1
4. 1 0 1 0
5. 1 0 1 1
6. 1 1 0 1
7. 1 1 1 0
8. 1 1 1 1

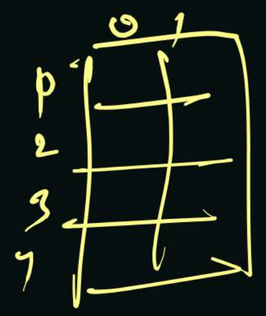
have no consecutive zeros.

get

length = 4

get] →


count
Base case -
zero length
""
string
with
length = 0
Repition is
on last added element
vs
length of string -
dp = (n+1) x 2
remaining length, last added
[1010, 0110, 1110, 0101, 1101, 1011, 0111, 1111]
[010, 110, 101, 011, 111]
"10", "01", "11"
"0", "1"
[1]
"0", "1"

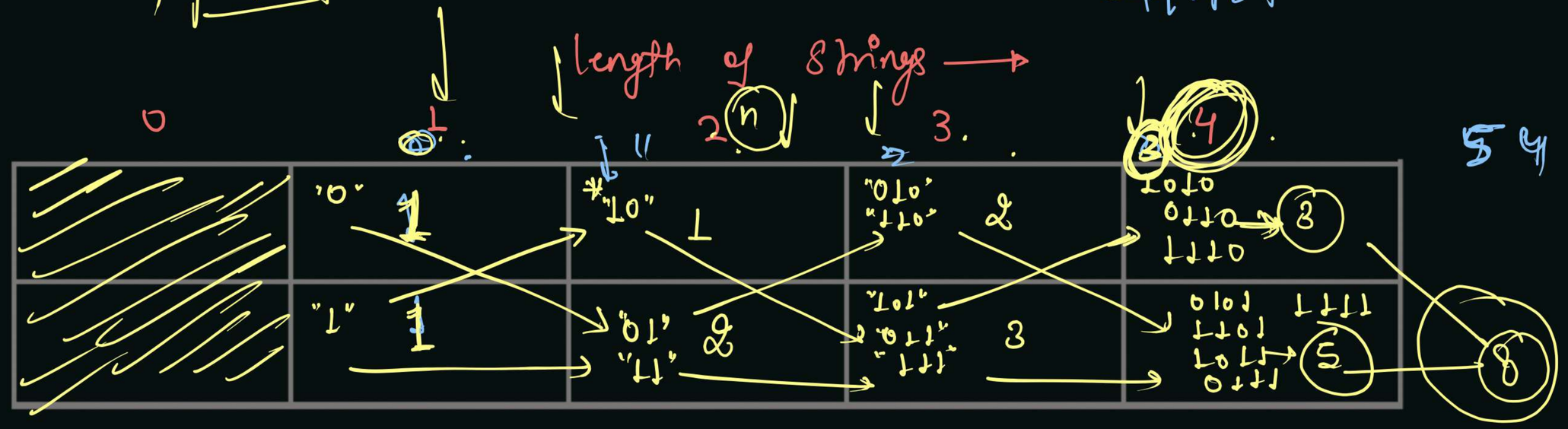


$n = 4$.

$dp = n \times 2$

$dp[0][0] = 1$

$dp[1][0] = 1$



* → No. ways to print string of length 2 ended at '0'

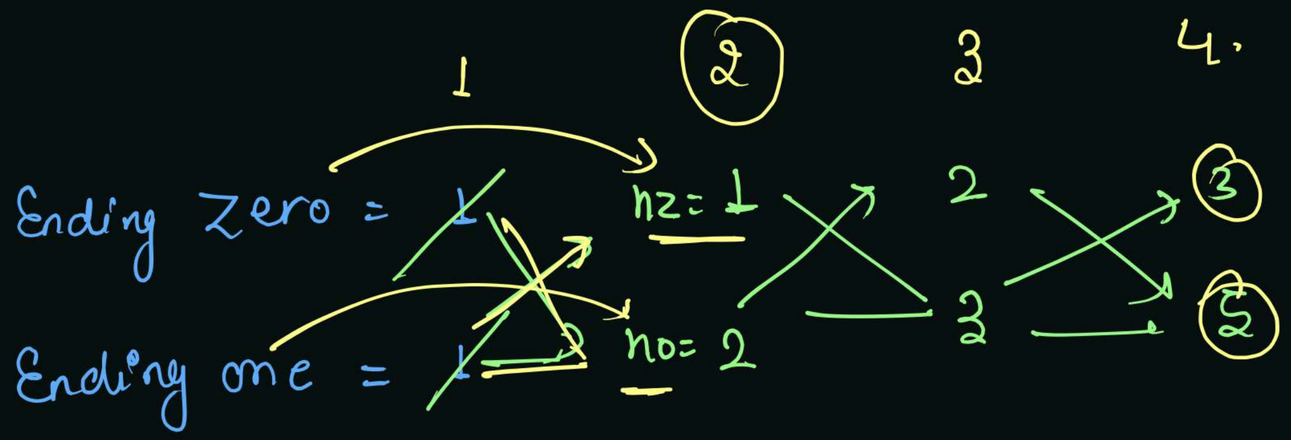
final Answer

8 + 5 = 8

$dp[n][0] = dp[n-1][1];$

$dp[n][1] = dp[n-1][0] + dp[n-1][0];$

Optimised Approach.



final Result = 3+5 = 8

```java
public static int countBinaryString_c
    int zero = 1;
    int one = 1;

    for(int i = 2; i <= n; i++) {
        int n_zero = one;
        int n_one = one + zero;

        zero = n_zero;
        one = n_one;
    }
    return one + zero;
}
```

Arrange Buildings

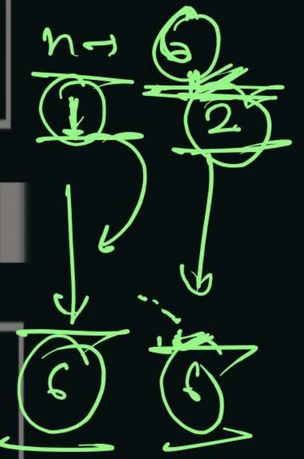
Tuesday, 29 June 2021 7:55 PM

{ no. of possible ways to arrange 6 length of string with no consecutive zero.

no. of possible ways to arrange no consecutive building.

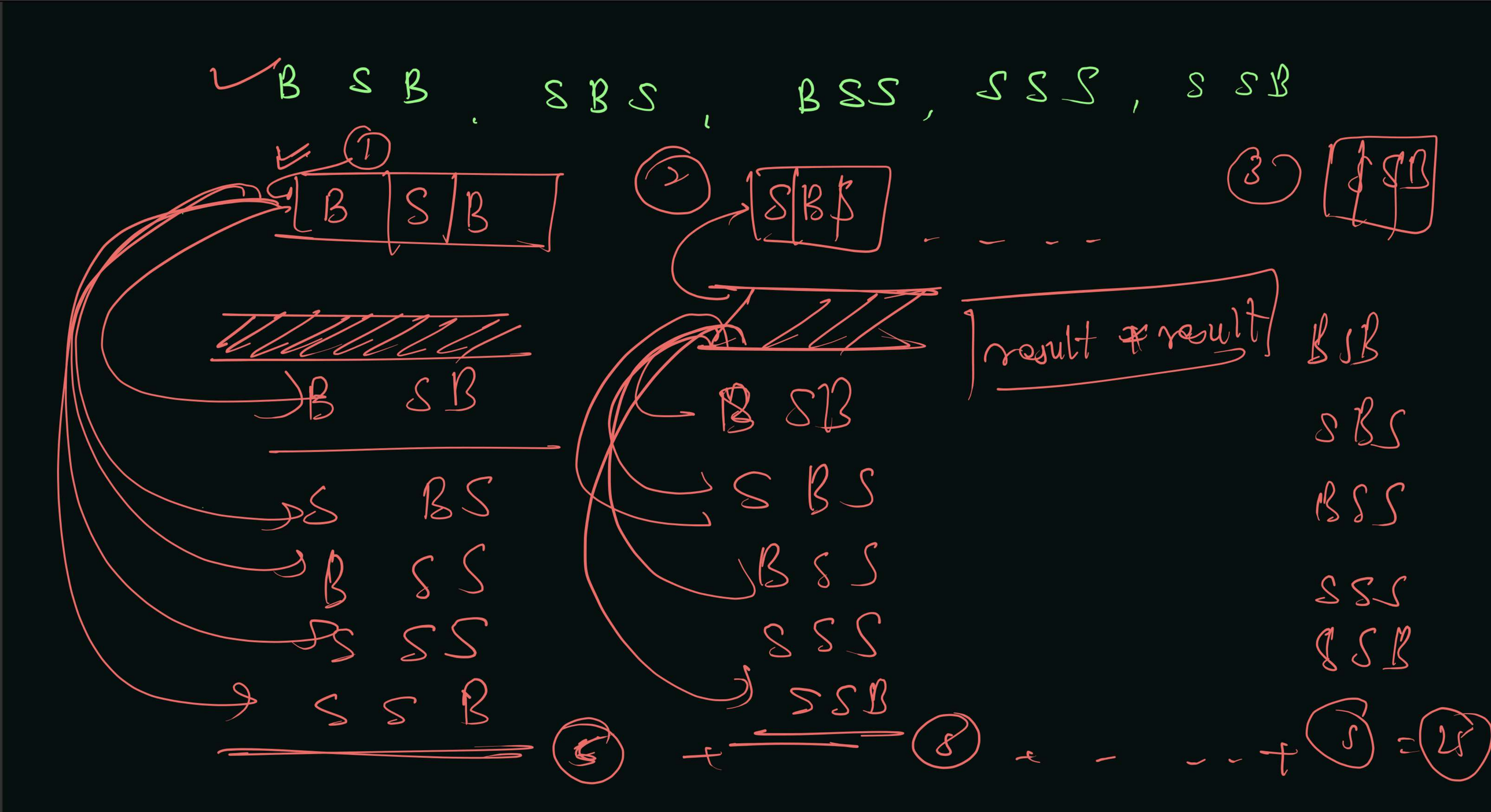
1 2 3 4 5 6

already done. assume

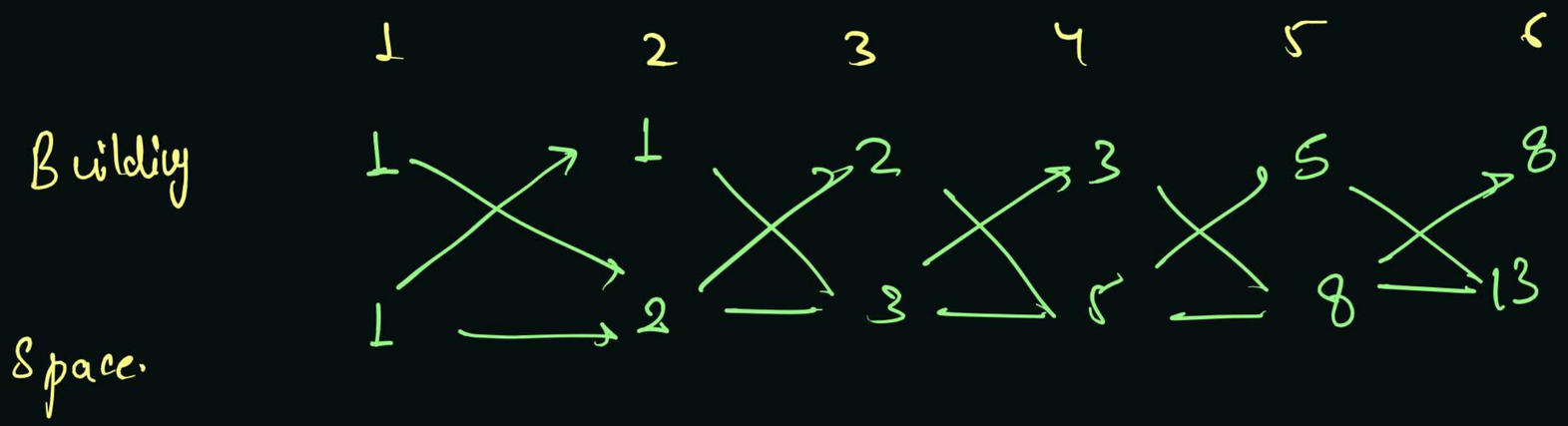


Building space] contraction

two consecutive Building ∞ not there in both side of Road


BSB , SBS , BSS , SSS , SSB
1
B S B
2
S B S
3
S S B
result ≠ result
B SB
S BS
BSS
SSS
SSB
B SB
S BS
BS S
S SS
SS B
5
8
+ - - - +
5
= 25

Result in single side for n = 6



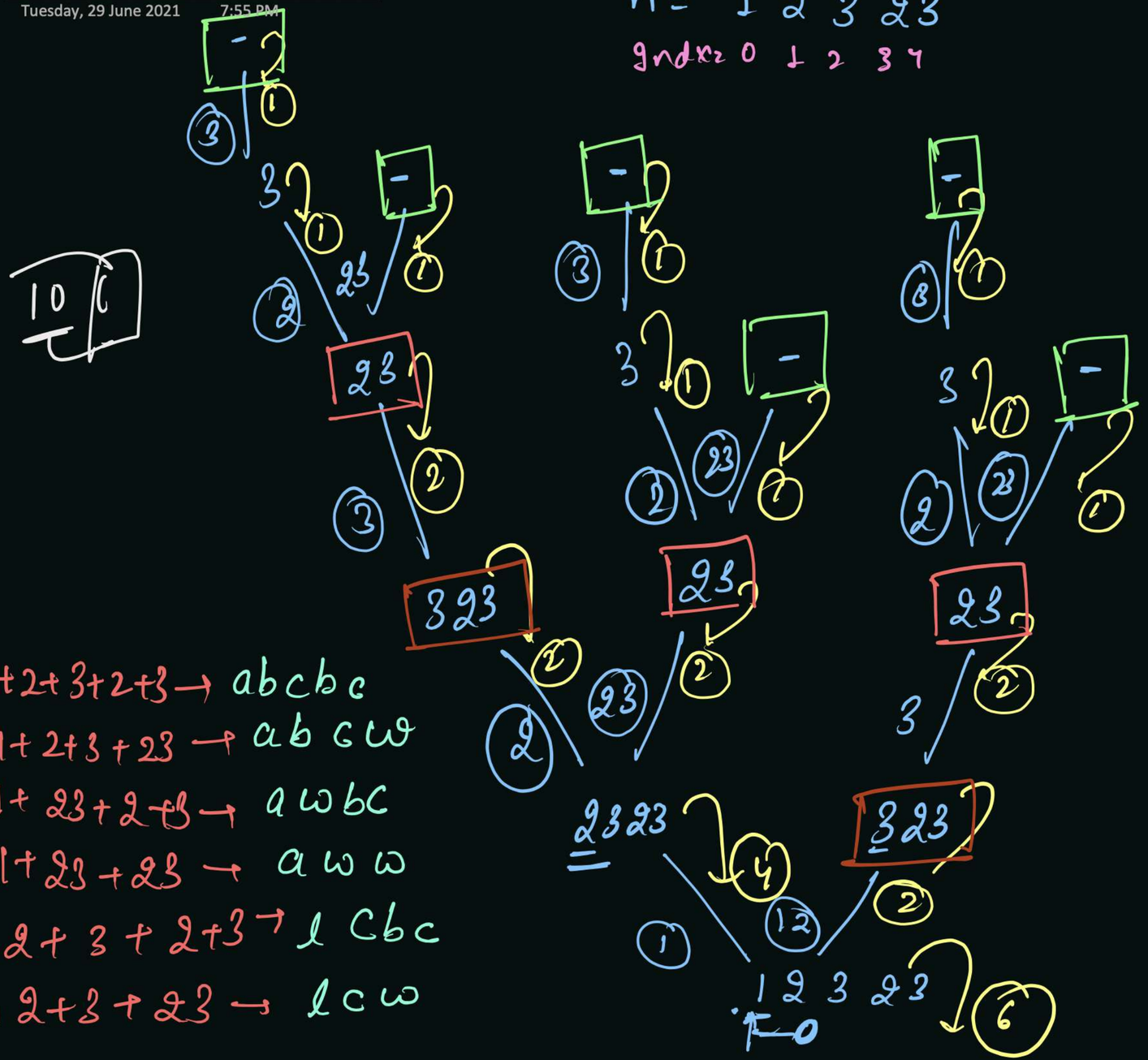
final result = 13 + 8

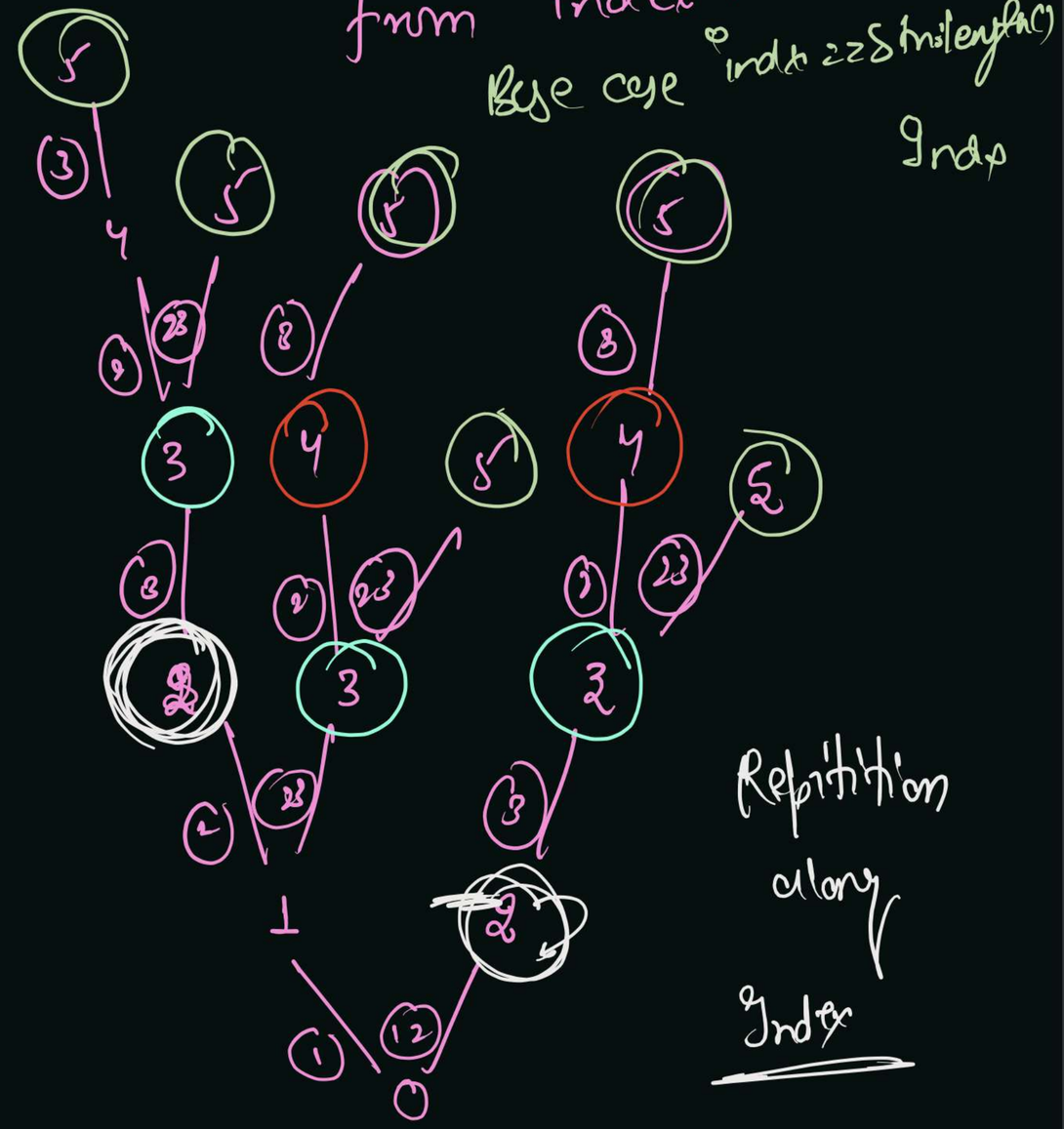
for single side = 21

for both side = 21 x 21 = 441

Count Encodings

Tuesday, 29 June 2021 7:55 PM





tabulation →

4 + 2 = (6)	2 + 2 = 4	2 +	2	(1)	(1)

abcbc
abcw
awbc
aww

bcbc
bcw
wbc
ww

cbc
cw

bc
w

c

-

lcbc
lcw

think about it ??

NOTE: Direction is matter here or not ??

Final Result = (6)