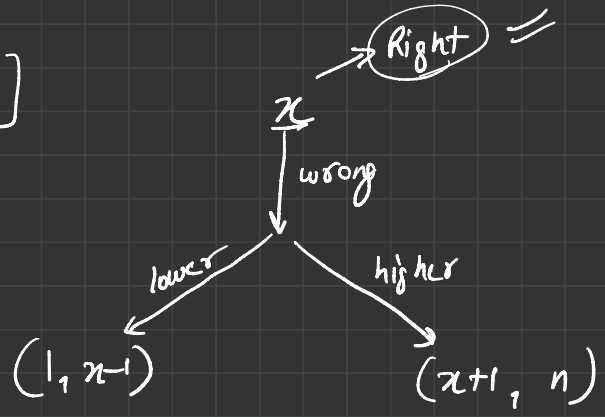
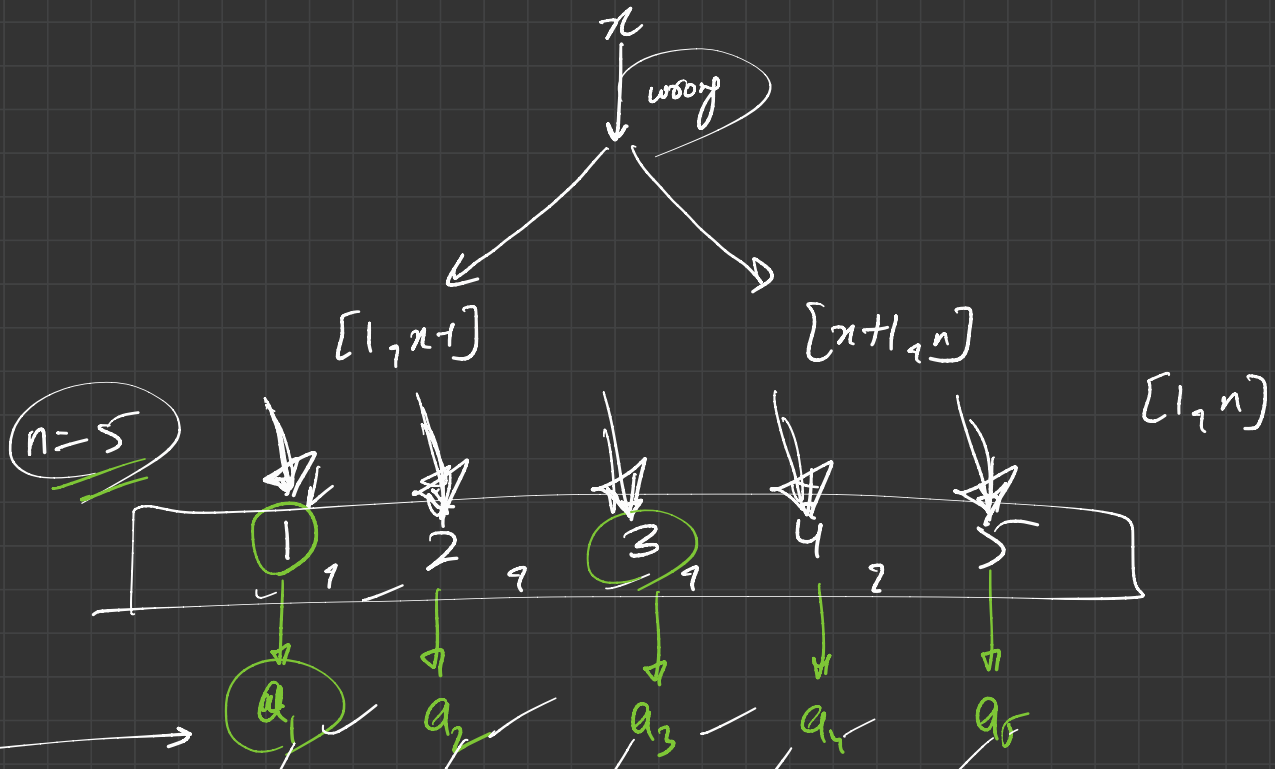
Dynamic Programming

i/p → [1, x, n]



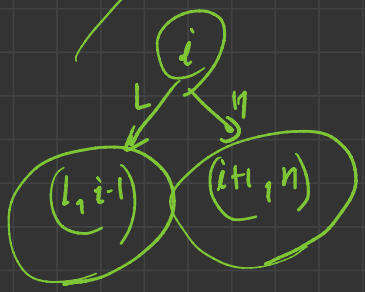
$[1, n]$

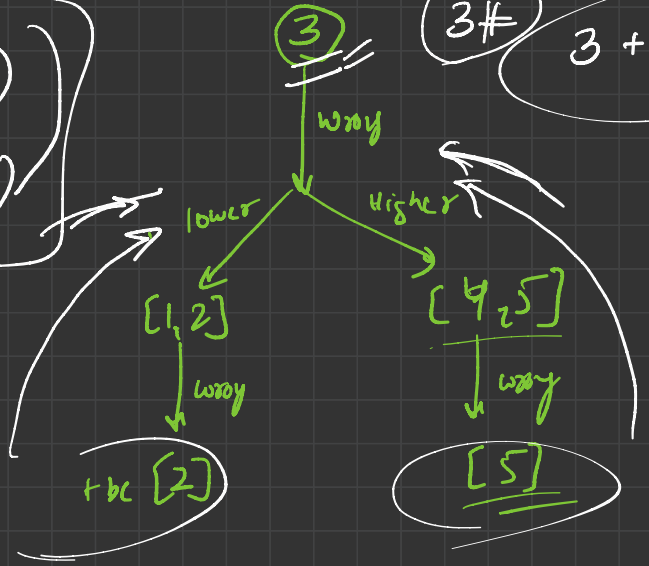


ans = $\min(a_1, a_2, a_7, a_{12}, a_5)$!

$a_i \rightarrow ?$

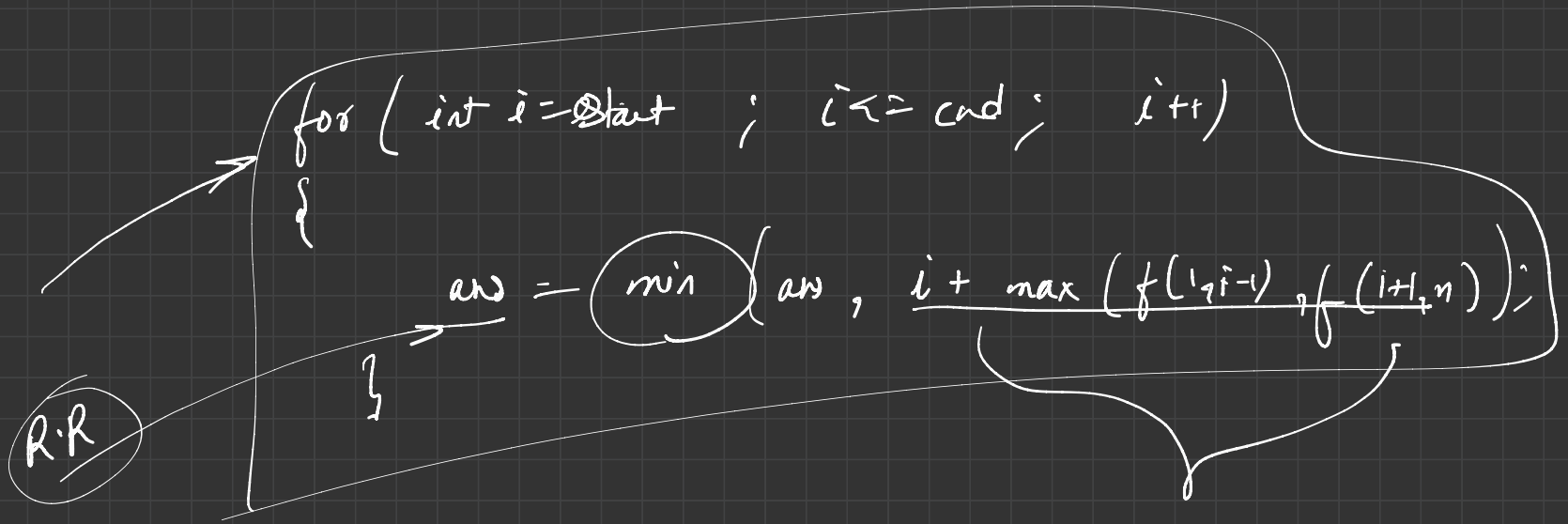
$a_i = i + \max(f(1, i-1), f(i+1, n))$





3#

$3 + \max([1,2], [4,5])$


for (int i = start ; i <= end ; i++)
{
ans = min (ans , i + max (f(1, i-1) , f(i+1, n)));
}
R·R

Top - Down

↳ start

1 ⟶ n

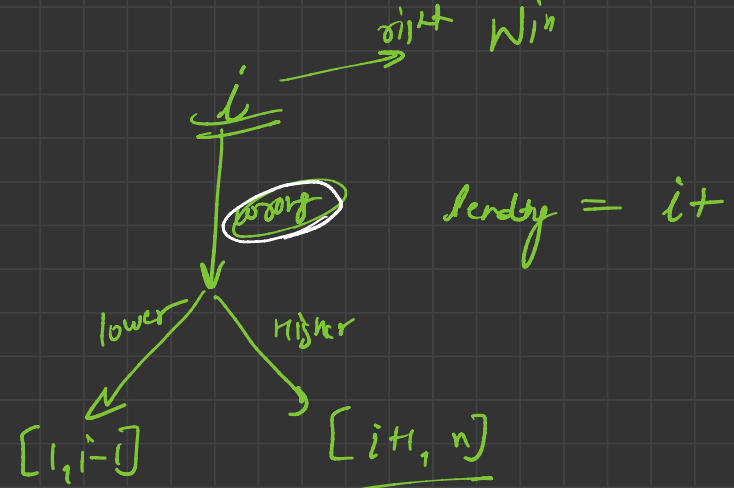
end

n ⟶ 1

S.O

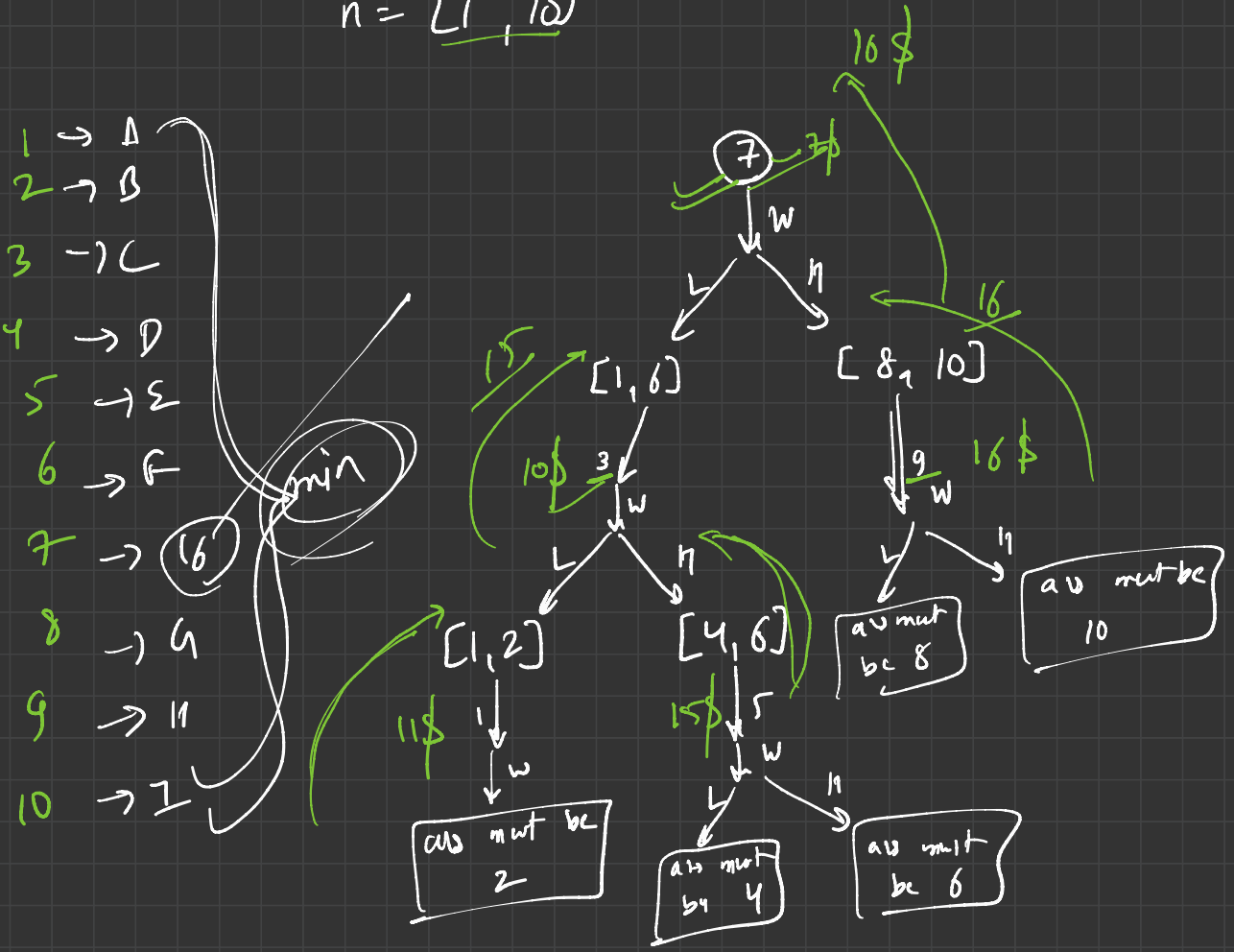
Bottom UP

i/p → n → [1, n]



Penalty = i+

dp(i, j) → min amount of money req to win for range [i, j]


n = [1, 10]
1 → A
2 → B
3 → C
4 → D
5 → E
6 → F
7 → G
8 → H
9 → I
10 → J
min
16
7
W
L
R
[1, 6]
[8, 10]
15
16
16 $
10 $
3
9
[1, 2]
[4, 6]
11 $
15 $
1
5
answer must be 2
answer must be 4
answer must be 6
answer must be 8
answer must be 10