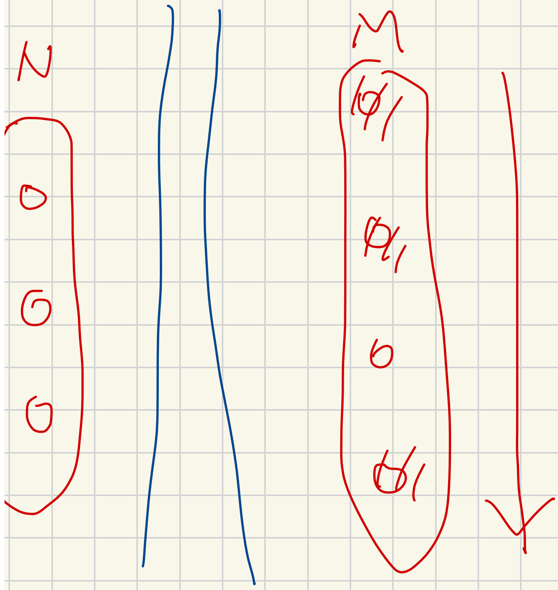


$$\boxed{{}_MC_N}$$

${}_MC_N$:= M개에서 N개를 뽑는 가짓수

순서없이 & 중복없이

$$\underbrace{\circ_R \quad \circ \quad \circ_G \quad \circ \quad \circ_B \quad \circ}_{M}$$

$N \le M$

$\left[\begin{matrix}\{G, B, R\} \\ \{R, G, B\}\end{matrix}\right] \rightarrow {}_MP_N$

p(M,N) := M개 중 N개를 순서×중복× 뽑는 가짓수.

1 2 3 ... M-1 M

○ ○ ○ ○ ○ ○

dp(M-1, N-1)

ㄴ M을 매칭에 포함

dp(M-1, N)

ㄴ M을 매칭에 미포함.

dp(M, N)을

dp(M-1, *)들로

표현해보자!

~~$M < N \to 0$.~~

$M = N \to 1$.

$N = 0 \to 1$.

~~$N < 0 \to 0$.~~

$\underline{M} > \underline{N}$

$\downarrow$

$\underline{M-1}, \underline{N-1}$

$\downarrow$

$\underline{M-2}, \underline{N-2}$

$\downarrow$

$\vdots$

$\downarrow$

$\underline{2_0}$, 0.

1	2 (= M)
0	0

$N = 1$.

${}_M C_N$

${}_2C_1 = {}_1C_0 + {}_1C_1$

b task.

접한 어떤 두 집도 색이 같지 않도록 N개의 집에 색칠하는 가짓수 (Easy)

접한 어떤 두 집도 색이 같지 ~~~ 가능한 모든 방법의 비용 총합.(Hard

$cost_1$

$cost_2$

$\vdots$

$cost_K$

$$\min_{i=1}^{K} \{cost_i\} \Updownarrow \sum_{i=1}^{K} \{cost_i\}$$

$0 \le c < 3$

$dp(i, c) :=$ i번째 집을 c로 칠하는 방법의 수

([1..i]까지만 칠한 상태에서)

[i+1]~[n]까지는 아직 고려 안 함

$\boxed{0} = 0$

$\boxed{0} = 0$

$\boxed{0} = 0$

$dp(i, 0)$

[1~i] 색칠할때

$\boxed{i}$ = i번째를 빨강으로 칠한 케이스중에서 최소 비용

$dp(i, 1) = \boxed{i}$:= i번" 파랑

$dp(i, 2) = \boxed{i}$:= i" 초록

$c_{i,0} = c_i$:= i번째 빨강으로 칠하는 비용

$c_{i,1} = c_i$

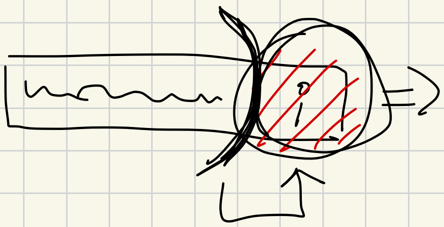
$c_{i,2} = c_i$

$dp(i, 0) = \min\{dp(i-1, 2), dp(i-1, 1)\} + c_i$

$\boxed{i} = \min\{\boxed{i-1}, \boxed{i-1}\} + c_i$

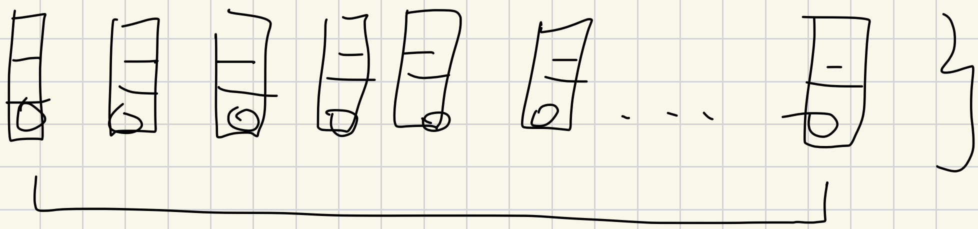
$\boxed{i} = \min\{\boxed{i-1}, \boxed{i-1}\} + c_i$

dp(i,0) :=



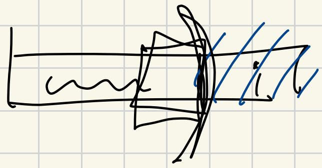
⇒ 현재까지 가능한 비용 최솟값.

$$dp(i,0) = \min\{dp(i-1,1),\ dp(i-1,2)\} + C_{i,0}.$$



3.

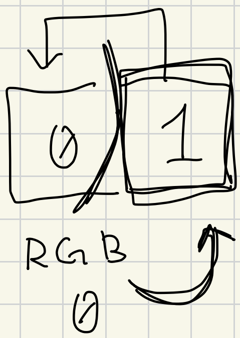
1003.

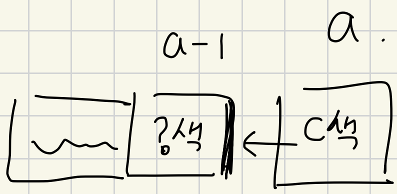
$dp(i,1) :=$ 

$$dp(i,1) = \min\{dp(i-1,0) + C_{i,1},\ dp(i-1,2) + C_{i,1}$$

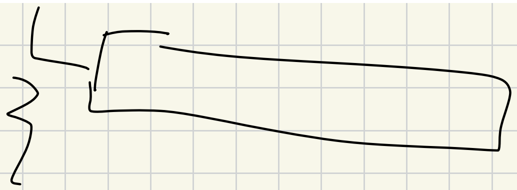
$$ans = \min\{dp(n,0),\ dp(n,1),\ dp(n,2)\}$$

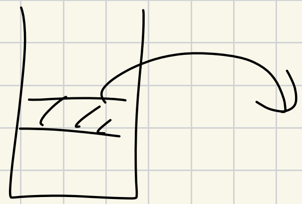
solve solve solve,


0
1
RGB
0


a-1
a
?색
C색

```
int best = 1e9;

for (int j=0; j<3; j++){
    if(j!=c){  <-  dp[i-1][j]
        best = min(best, solve(i-1, j));
    }
}

return dp[a][c] = best + cost[a][c];

est=1e9;
int solve(3,1), }

t=1e9; ->  int best = 1e9;
```





$\boxed{\min(\{\ldots\}\} \quad \ldots\})}$

DP

- LIS. ✓
- LCS. ✓
- Knapsack. ✓