

Imp Q

TL			

be $n \times n$



Total
letter
count

$$\underline{\underline{f(i, j) = f(i+1, j) + f(i, j+1)}}$$

max 2000

A 3x3 grid with blue borders. The numbers inside are purple. Red arrows and an 'X' are drawn around the grid. The top-left arrow points right, then loops back to the top-left cell. The bottom-left 'X' is below the first column. The right-side arrow points left, then loops back to the right side.

6	3	1
3	2	1
1	1	1



	c_1	c_2	c_3				
h_1	1	5	3		1	5	3
<u>h_2</u>	2	9	4		5	10	5

$$f(i, c_j) = \text{cost}[i][j] + \min(f(i-1, c_m))$$

returns the min cost
to paint i^{th} house with
color

$$\min(f(n-1, c_i))$$

$$\forall c_i \in \underline{\underline{[c_0, c_1, \dots, c_{k-1}]}}$$

$$\forall m \in [0, k-1] \\ \text{and} \\ \underline{\underline{m \neq j}}$$

houses = 4 colors \rightarrow 3 \swarrow dp

cost = $\begin{matrix} & c_1 & c_2 & c_3 \\ h_1 & 1 & 5 & 7 \\ h_2 & 5 & 8 & 4 \\ h_3 & 3 & 2 & 9 \\ h_4 & 1 & 2 & 4 \end{matrix}$

1	5	7
10	9	5
8	7	18
8	10	11

8

$$f(i, c_j) = \text{cost}[i][c_j] + \min(f(i-1, c_m))$$

returns the min cost
to paint i^{th} house with
 c_j color

$$\forall m \in [0, k-1] \text{ and } m \neq j$$

$$\min(f(n-1, c_i))$$

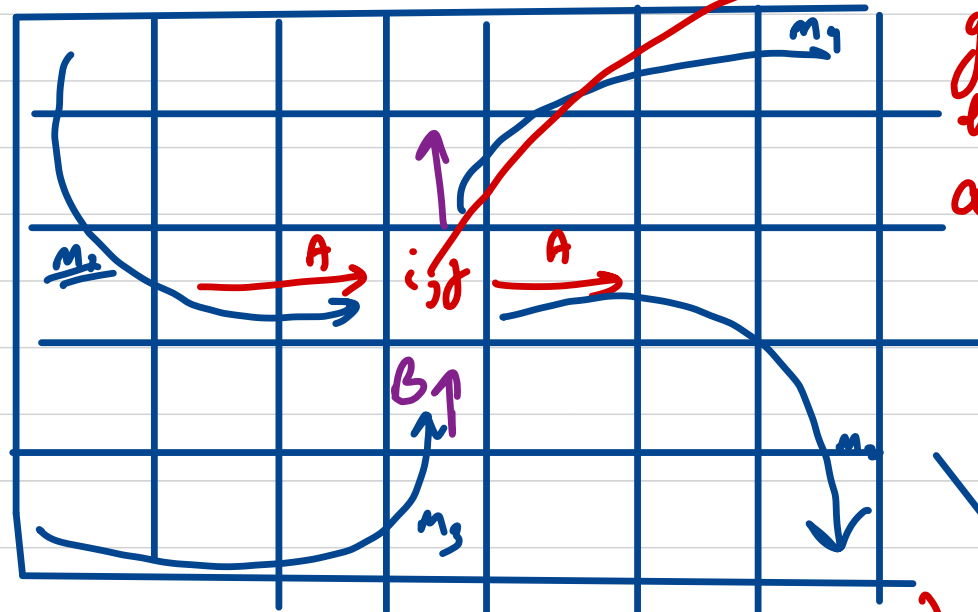
$$\forall c_i \in [c_0, c_1, \dots, c_{k-1}]$$

Core 1

A

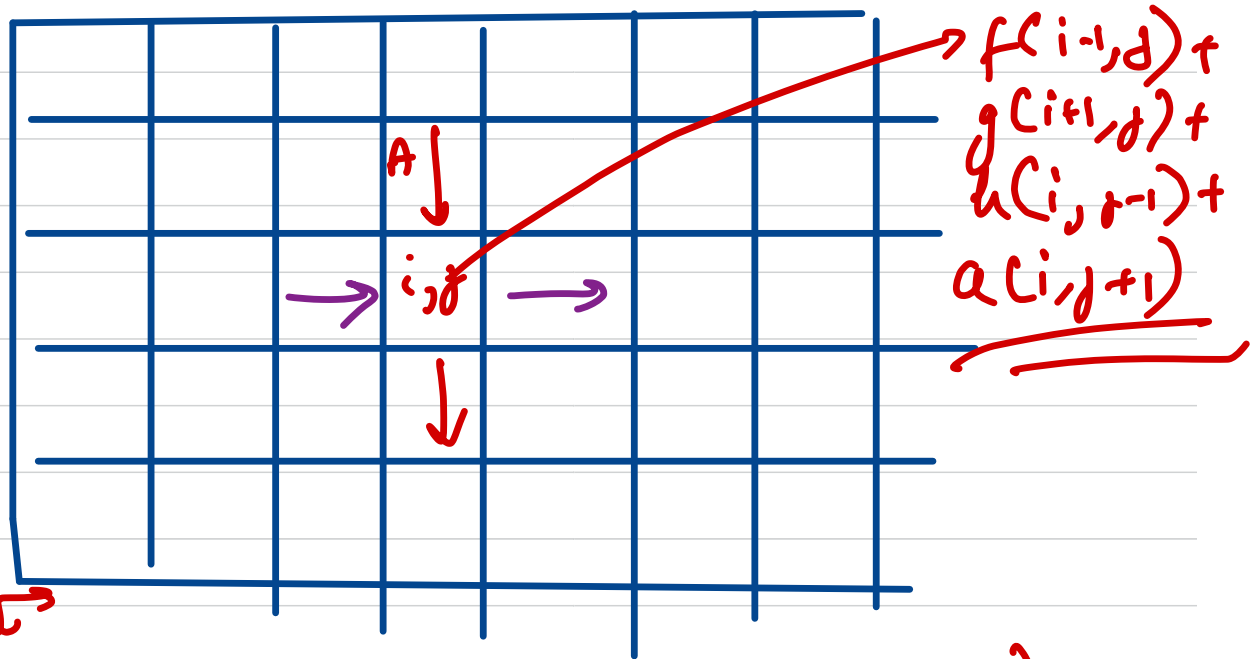
B

$0,0 \rightarrow i,j$ \rightarrow



$$f(i, d-1) + g(i, d+1) + h(i+1, d) + a(i-1, d)$$

$$\begin{aligned} m_1 &\rightarrow f(i, j) = C_{ij} + \max(f(i-1, j), f(i, j-1)) \\ m_2 &\rightarrow g(i, j) = C_{ij} + \max(g(i+1, j), g(i, j+1)) \\ m_3 &\rightarrow h(i, j) = C_{ij} + \max(h(i+1, j), h(i, j+1)) \\ m_4 &\rightarrow a(i, j) = C_{ij} + \max(a(i, j+1), a(i+1, j)) \end{aligned}$$



$0, 0 \rightarrow i, j$

$$m_1 \rightarrow f(i, j) = C_{ij} + \max(f(i-1, j), f(i, j-1))$$

$$m_2 \rightarrow g(i, j) = C_{ij} + \max(g(i+1, j), g(i, j+1))$$

$$m_3 \rightarrow h(i, j) = C_{ij} + \max(h(i+1, j), h(i, j-1))$$

$$m_4 \rightarrow a(i, j) = C_{ij} + \max(a(i, j+1), a(i-1, j))$$

-2	-3	3
-5	-10	5
10	30	-5

$$f(i, j) = \min(f(i+1, j), f(i, j+1)) - \text{valid}(w)$$

\downarrow
 represent min
 best repd at
 (i, j)

\hookrightarrow if $f(i, j) \leq 0$: 1 : $f(i, j)$

