

Backtracking

Tuesday, 4 February 2020 1:30 PM

Q. Rat In A Maze

7x7

0	0	1	0	0	1	0
1	0	1	1	0	0	0
0	0	0	0	1	0	1
1	0	1	0	0	0	0
1	0	1	1	0	1	0
1	0	0	0	0	1	0
0	1	1	1	0	0	0

2
0
R
0

$O(4^2)$ ans = 12

$\hookrightarrow O(4 \times 3^{n-1})$

\Downarrow
 $O(2^{4n-4} \times 3^{n^2-4n-4})$

Q.

You will be given a number "N". You need to find the number of ways in which you can place "N" queens on a "N x N" chessboard such that no queen attacks the other.

>		Q		
↳	Q		-	Q
→	Q		-	-
→	-	-	Q	-
→	-	-	-	-

←

$S(n) = n^2 + n$

$O(n^2)$

$T(n) = n * T(n-1)$

$$= 1 \times (n-1) \times \tau(n-2)$$

$$= 1 \times \tau(n-1) \times \tau(n-3) \times \tau(n-2)$$

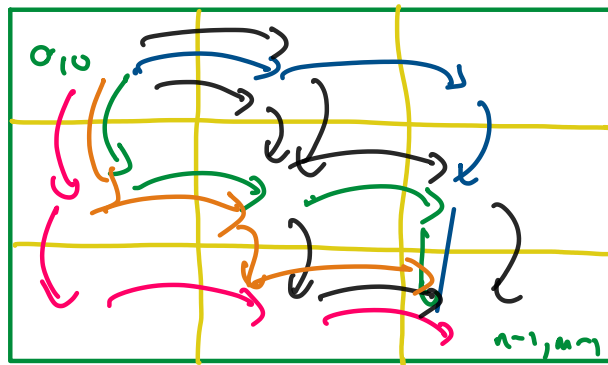
$$\vdots$$

$$= 1 \times (n-1) \times (n-2) \dots \dots \dots 1$$

$$= n!$$

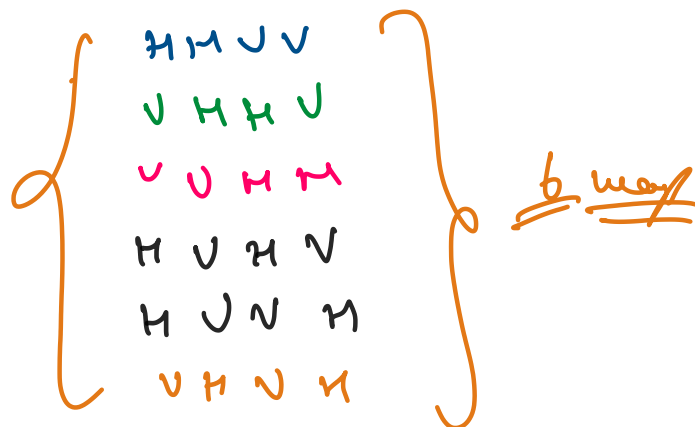
$$\underline{\underline{O(n!)}}$$

Q5



Right
Down

$n \times m$



(n, m)

6 way