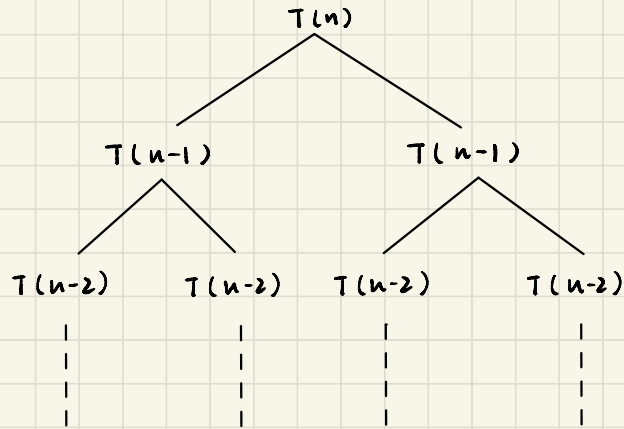


D)

$$T(n) \leq 2T(n-1) + O(1)$$



level 1 : 1

level 2 : 2

level 3 : 4

depth of tree :  $O(1)$

$$\begin{aligned} T(n) &\geq (1 + 2 + 4 + \dots + 2^k) \cdot O(1) \\ &\geq \frac{1 \cdot (2^{k+1} - 1)}{2 - 1} \cdot O(1) \\ &\geq 2^{k+1} - 1 \cdot O(1) \\ &\geq O(2^n) \end{aligned}$$