- CS18BTECH11001

1. Let us consider the collection F contains k elements

i.e $F = \{\sigma_1, \sigma_2, \sigma_3, \dots \sigma_k\}$

We can always ~~th~~ say that $k \leq n$

Proof: If we consider v_i to be the last vertex of a linear ordering, then it satisfies $\forall v_j$ such that $(v_j, v_i) \notin E$. As every vertex has to considered for a maximum solution we require n linear orderings

i.e $|F| \leq n \Rightarrow O(n)$

By another intution we can show that the no. of linear orderings is less than n. In the above scenerio we have only considered the last vertex in the ordering. But if we considered to the permutation before it an arrange them in some optimal manner we can acheive it in $O(\Delta \log^{n})$.