Graph Theory: Lecture No. 8

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A path cover of a directed graph G is a set of disjoint paths in G which together contain all the vertices of G.

Every directed graph G has a path cover $\mathcal{P}$ and independent set $\{v_P : P \in \mathcal{P}\}$ of vertices such that $v_P \in P$ for every $P \in \mathcal{P}$.

In every finite partially ordered set $(P, \leq)$, the minimum number of chains with union P is equal to the maximum cardinality of an antichain in P.

A graph $G = (V, E)$ is a comparability graph if and only if its edges can be transitively oriented.