# An Example: Vertex Cover Problem

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Given an Undirected graph $G=(V, E)$ find a minimum size vertex cover i.e.

Find $V' \subseteq V$ s.t. every edge in $E$ has atleast one endpoint in $V'$

What can we say about the optimal solution $V_{OPT}$?

Matching in a graph

For $G=(V, E)$, $M \subseteq E$ is a matching if no two edges of $M$ share an end point.

Claim:- Size of 'Maximal' Matching lower bounds size of vertex cover.

ALG: Find a Maximal Matching in $G$ and output set of matched vertices.

Claim:- Alg gives a 2-approximation for the vertex cover problem

PROOF?