Dominating set

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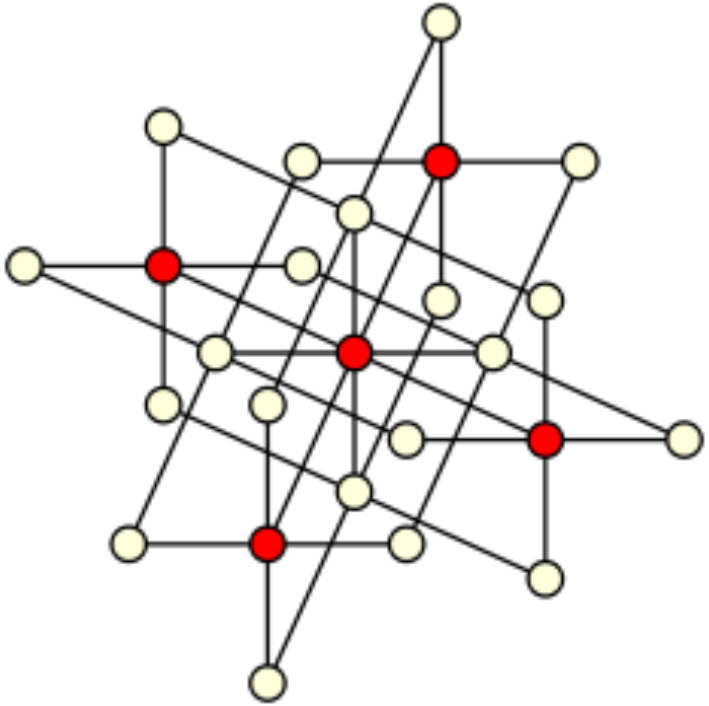
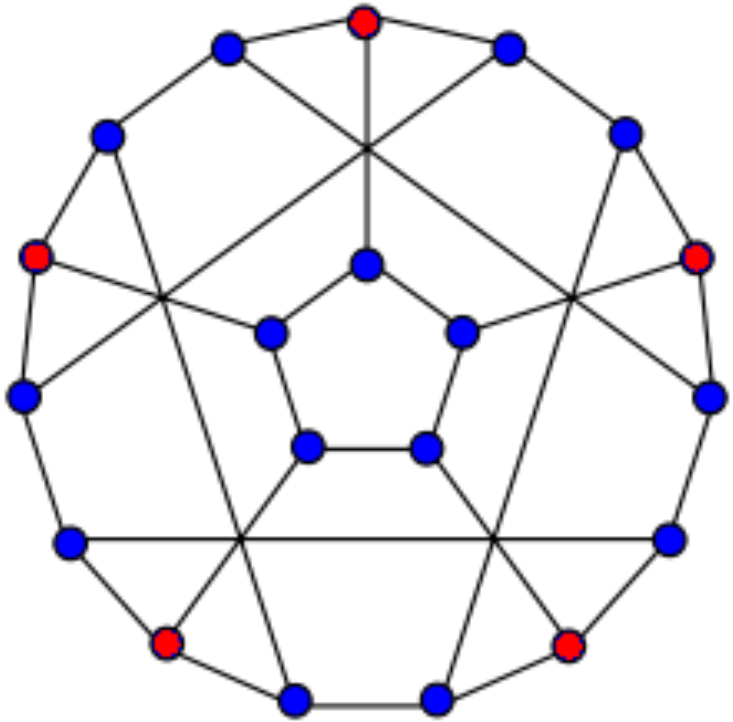
MDS

- G = (V,E)
- DS is a subset of nodes $D \subseteq V$ such that for all $u \in V \backslash D$ there exists a $v \in D$ for which $(u, v) \in E$
- MDS is that of dominating set of minimum cardinality (domination number of G - $\gamma(G)$)





Applications

- network testing
- web graphs
- wireless communication
- graph mining

Algorithms

- MDS of an n-vertex graph can be found in time $O(n*2^n)$ by inspecting all vertex subsets;
- Fomin, Grandoni & Kratsch (2009) - $O(1.5137^n)$ and expspace;
- Fomin, Grandoni & Kratsch (2009) - $O(1.5264^n)$ and polyspace;
- van Rooij, Nederlof & van Dijk (2009) - $O(1.5048^n)$ time;
- HGA-MDS (Hybrid Genetic Algorithm).