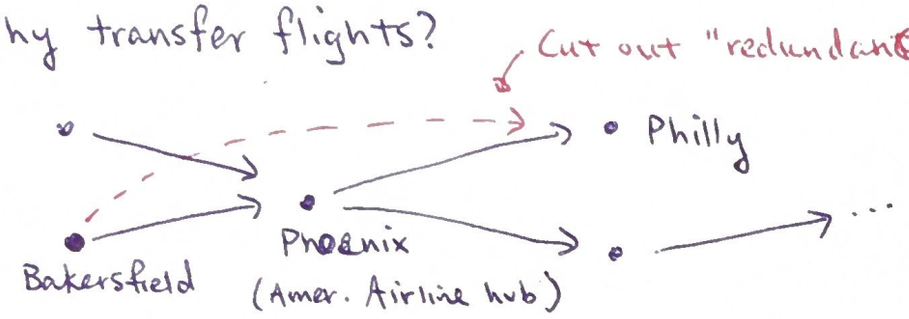
Minimum cost spanning tree (MST)

- Why no In-N-Out in NJ? No distribution network
- Why transfer flights?

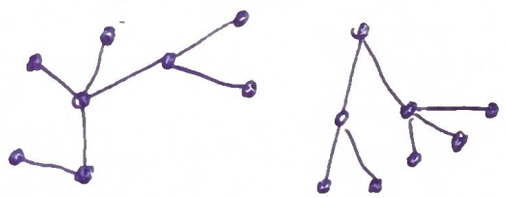


~~Structure is a "tree"~~

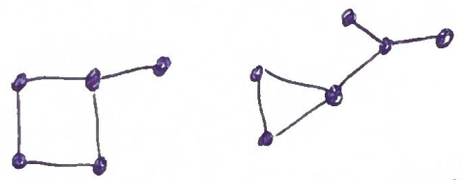
A structure without such redundancies is a "tree".

Definition A tree is a graph without circuits / loops.

Ex of trees



Not examples of trees



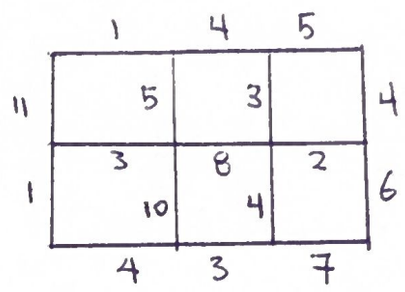
Family "trees" (incest).

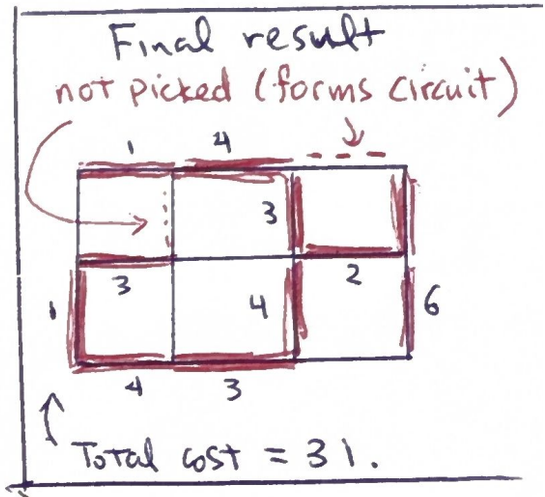
Definitions

- A spanning tree of a graph G is a subgraph of G that includes every vertex of G.
- A minimum spanning tree (MST) is a spanning tree with minimal total cost.

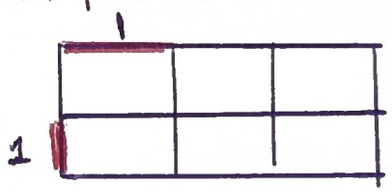
Kruskal's algorithm To get MST, added smallest edges without forming circuits until you get a spanning tree.

Ex

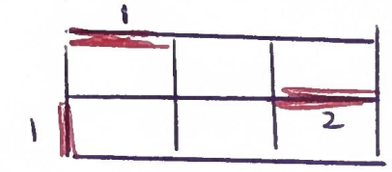




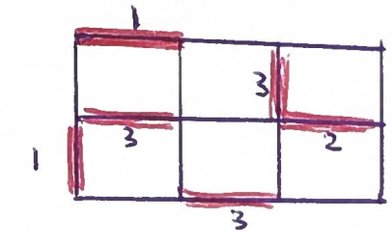
First pick lowest cost edge (1's)



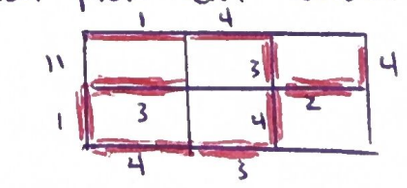
Then pick next lowest cost edges (2's).



Then pick next lowest cost edges (3's)



Then pick next lowest cost edges (4's)



We can't pick 5's (form circuits) so we add 6's, which now touch every vertex so completes our spanning tree