

2/3/23 Graphs

Arpa net (old internet)

directed: one way edge

directed graphs may have weights on edges

can represent graph w/ adjacency matrix $n \times n$

complete = $n \times n$

Non complete graph = sparse

symmetric along diagonal if undirected graph

2 ways to search:

Breadth first search (bfs search)

- queue

- checks immediate reachable

Depth search

- recursion or stack

Trees are acyclic graphs

if graph is n, then $n!$ factorial ways to traverse

Makefile is a graph

Topological sort, start from top

Kahn's algorithm

Single Source Shortest path (SSSP)

Hamiltonian path visits each node once

Eulerian Path visits each edge once

min cut max flow algorithm