Course Review

Graphs

Graph Representations
Adjacency List
Adjacency Matrix

Given a small graph, you should be able to illustrate these.

Choose which is appropriate for an application.
**Graph Algs**

**Single Source Shortest Path Algs**

Common Use:

- **Vertex** $\leftrightarrow$ state in world
- **edge** $\leftrightarrow$ action that moves you between states

- directed vs. undirected
- weighted vs. unweighted
See when you can model a problem as a shortest path problem.

**Unweighted** - BFS starting O(\( \text{htm} \)) at source (if there's a goal you can stop when you discover a path).

**Weighted** -

Fibonacci Dijkstra's algo - No negative weight edges are allowed O(\( n \log nt + m \))
Minimum Spanning Tree
Prim's & Kruskal's Alg

Depth First Search

- topological sort
- in-place dfs & use in garbage collection (Mark + Sweep)