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**Assignment 7**

**Questions**

1. How is the graph stored in the provided code -- adjacency matrix or edge list?

**The graph is stored in the provided code as an edge list.**

2. Which of the graphs are connected? How can you tell?

**Graphs 1, 2, 4 and 5 are connected. They are connected because there is a path between any two pair of vertices.**

3. Imagine that we ran each search in the other direction (from destination to source, instead of source to destination) -- would the output change at all? What if the graphs were *directed* graphs?

**For undirected graphs like the ones we have, the output would not change it all.**

**However, if the graphs were directed graphs, the results could have been different.**

4. What are a few pros and cons of DFS vs. BFS?

**DFS pros:**

**-can get lucky and find solution very quickly**

**DFS cons:**

**-can take a bad route and have to backtrack a long way, multiple times.**

**-can get stuck in infinite path**

**BFS pros:**

**-will always find solution**

**-guaranteed to find a path containing the least steps from start to goal**

**-will not get stuck in an infinite path**

**BFS cons:**

**-might not find solution quickly**

**-may take up more space because it looks at all path of a certain length at once**

5. What's the Big O execution time to determine if a node is reachable from another node?

**The execution time for both BFS and DFS is O(V+E), where V is the set of all vertices and E is the set of all edges. The maximum between vertices and edges – whatever dominates.**