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10/16/23
CS 385 HW 3
I pledge my honor that I have abided by the Stevens Honor System.

1. Adjacency matrix:

	1	2	3	4	5	6	7	8	9	10
1	0	1	0	1	0	0	0	0	0	0
2	0	0	0	0	1	0	0	0	0	0
3	0	0	0	0	1	0	0	0	0	0
4	0	1	0	0	0	0	0	0	0	0
5	0	0	0	1	0	0	0	0	1	0
6	0	0	0	0	0	1	0	1	0	0
7	0	0	0	0	1	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	1	0	0	1
10	0	0	1	0	1	0	0	0	0	0

2. Adjacency list:

1: 2, 4
2: 5
3: 5
4: 2
5: 4, 9
6: 6, 8
7: 5
8: none
9: 7, 10
10: 3, 5

3. BFS: 1, 2, 4, 5, 4, 9, 7, 10, 3, 6, 8

4. DFS: 1, 2, 5, 4, 9, 7, 10, 3, 6, 8

5. a. $O(V^2)$ b. $O(V+E)$

6. a. $O(V^2)$ b. $O(V+E)$

7. When $V^2 > V+E$, the adjacency list wins. This usually happens when there are more vertices that are less "interconnected".

8 First, BFS will take a node from the queue and explore its neighbors If a neighbor is visited & is not a parent node of the current node, there is a cycle.

9. BFS is quicker because it goes level by level instead of exploring every edge & vertex.

10. Topological sort is not possible because if sorted, it would be: 1, 2, 5, 4... There will come a point in the topological sort where the indegree is 0.

11. 1, 4, 2, 5, 6, 8, 9, 7, 10, 3