John Spicer
I pledge my honor that I have abided by the Stevens Honor System.
10/20/15

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1.

	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	0	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	0	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	1	1	0	0	1
10	0	0	1	0	1	0	0	0	1	0

2.

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

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

4. 1, 2, 5, ~~4, 9, 7~~, 10
    4, 9, 7, 10, 3, 6, 8
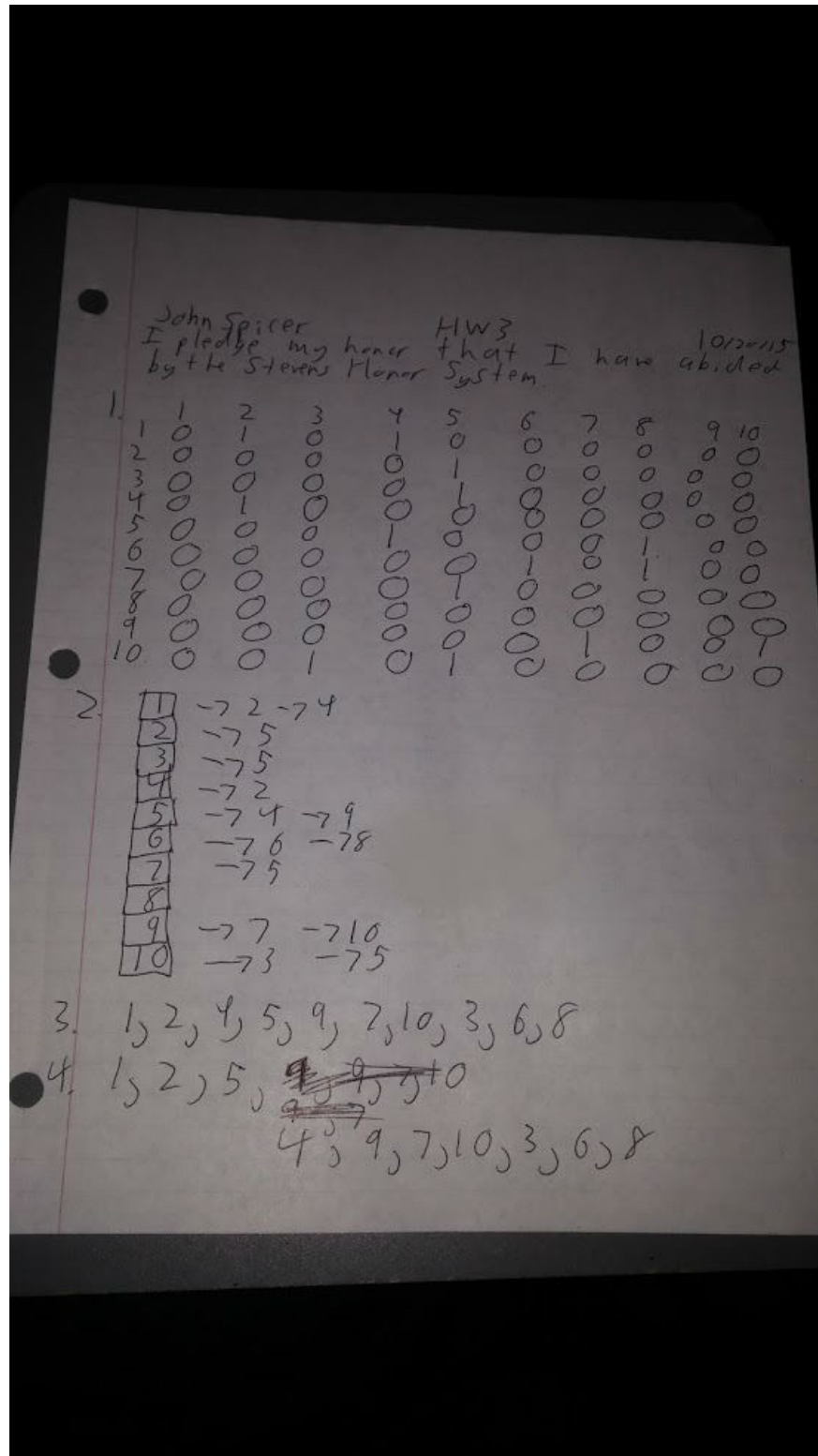
5.a. $O(|V|^2)$
  b. $O(|V| + |E|)$

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

7. Adjacency list is much better if the number of edges in low, but there are many vertices. Matrix always uses $O(V^2)$ memory while the list can save a lot of memory as it is proportional to the number of edges

8. The only nodes that can be reached are 1 (indegree of 0), and 2 (indegree of 0 after reaching 1). Every other node has an indegree of 1 or more and is impossible to reach, making topological sort impossible.

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