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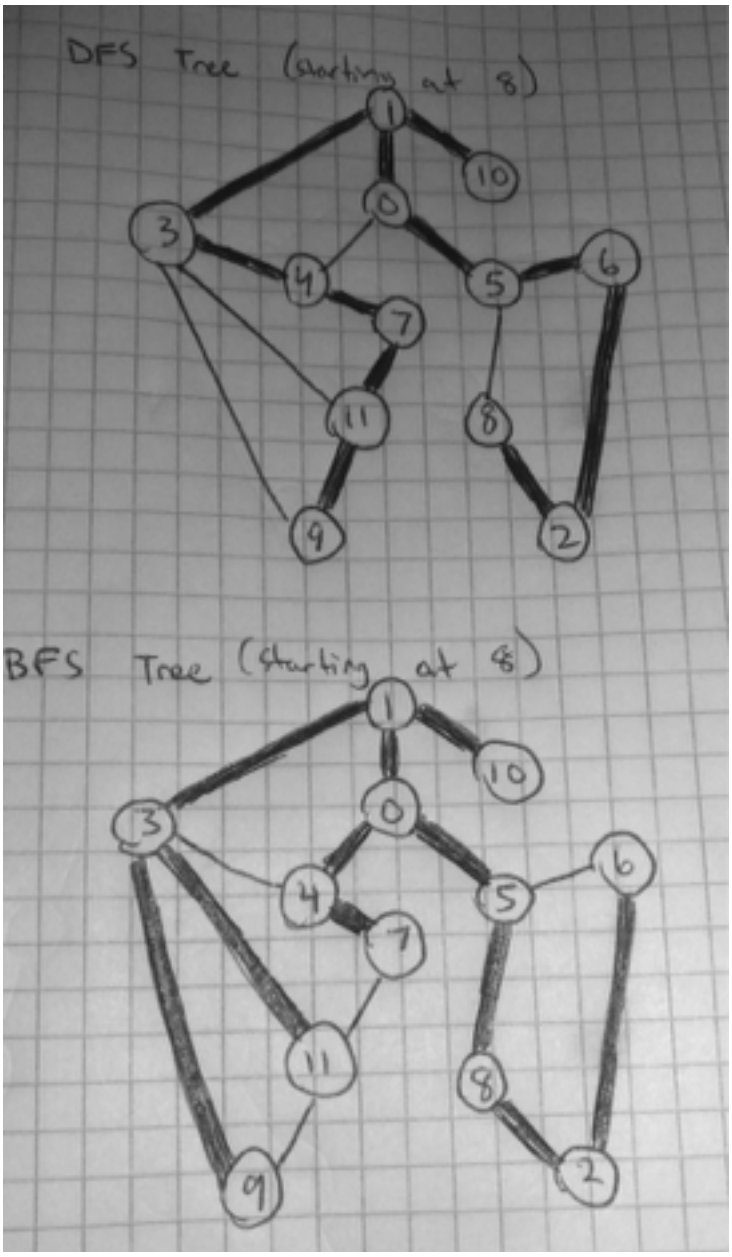
CSC 106 Assignment 5

1.



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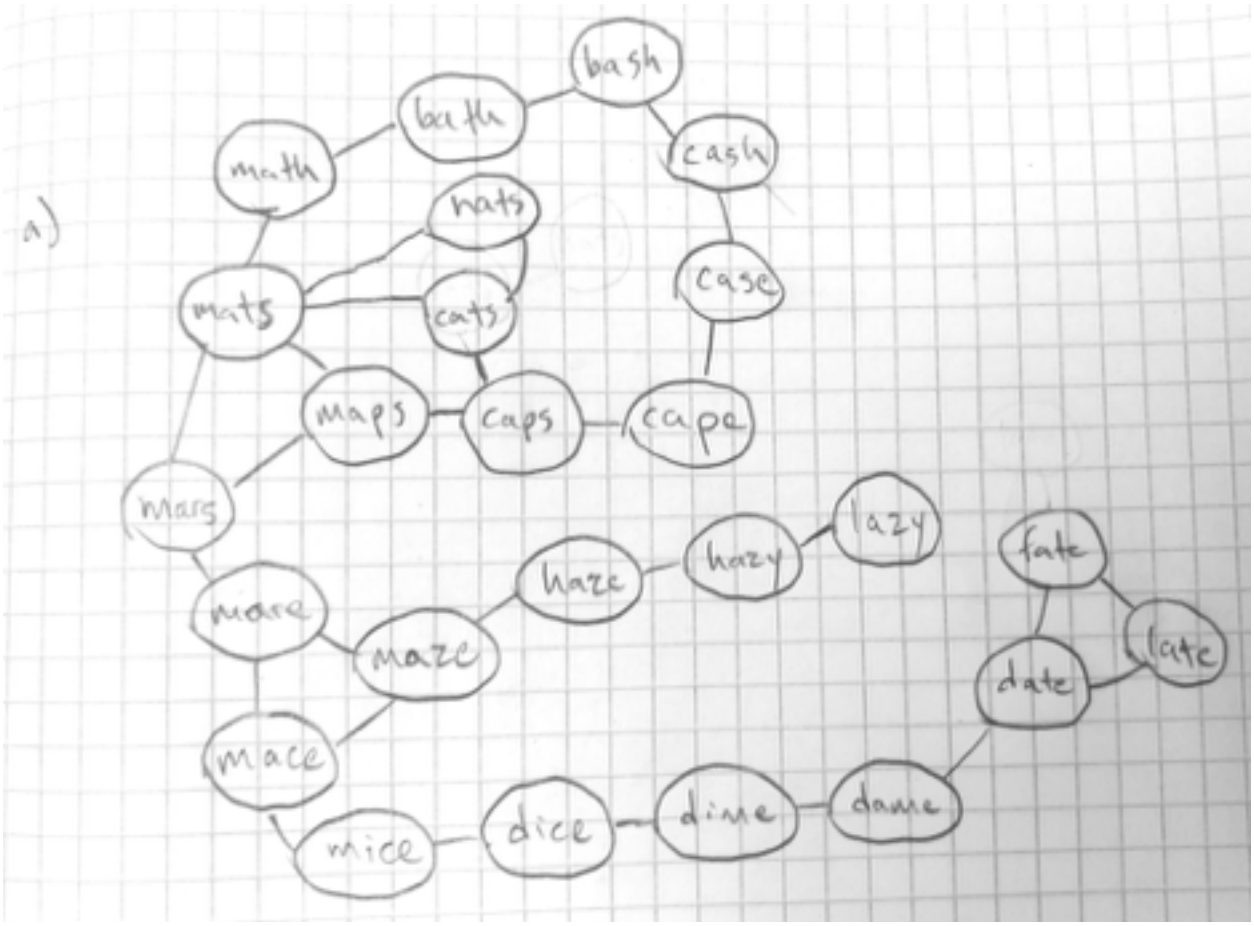
2.



b) To find the shortest word ladder between two words W1 and W2, one could run a BFS traversal on the graph from part a starting at W1. Then they could simply follow the BFS tree from W1 to W2 and that path would be the shortest word ladder.

c) lazy -> hazy -> haze -> maze -> mace -> mice -> dice -> dime -> dame -> date -> late

3. a) This problem is very similar to the course scheduling algorithm seen in lectures. Create a directed acyclic graph where tasks are nodes and directed edges connect them (directed outward from prerequisites), then topologically sort the graph. The valid ordering can then easily be read left to right (where all nodes now have edges directed to the right).

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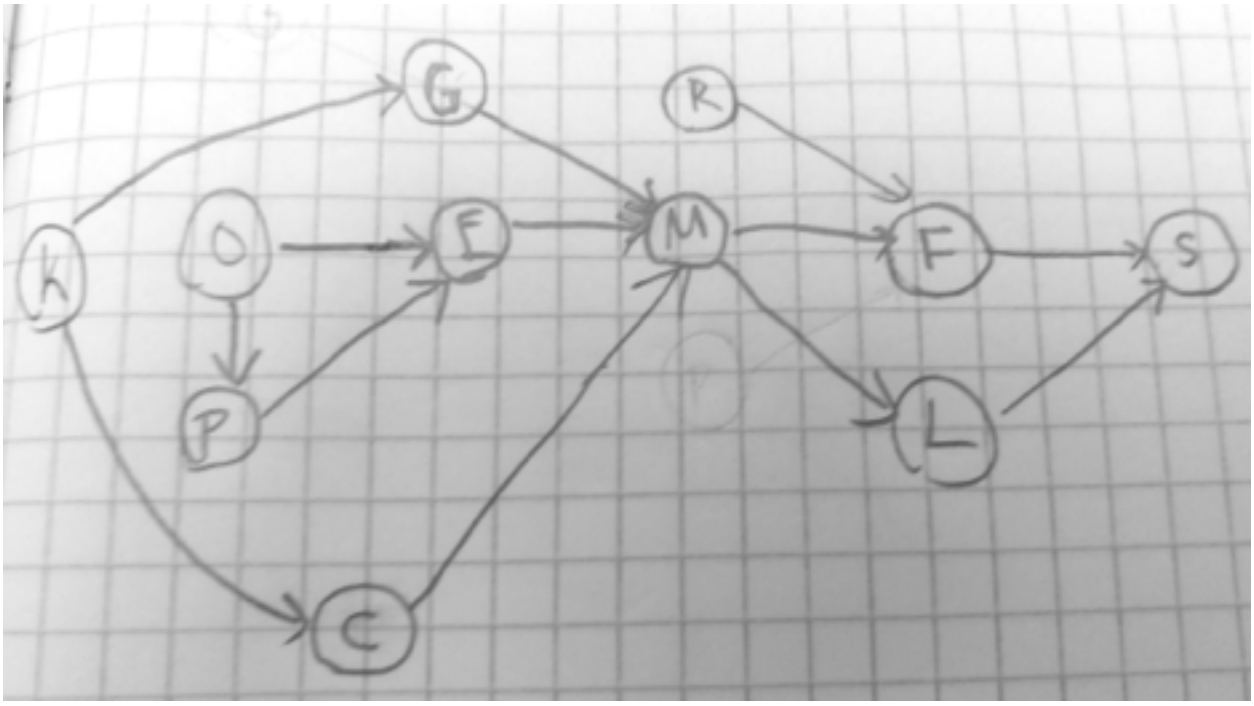
b)



c) The task graph needs to be topologically sorted. This can be achieved by taking the reverse postorder of a Depth First Search traversal of the directed acyclic graph.

d) One possible ordering is K, O, P, E, G, C, R, M, L, F, S.