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Assignment 5

Task 1(a)

Firstly, I have run DFS and put all the nodes in a stack which is done in DFS_topo function and then using the stack.pop() i have appended the topological sorting elements in a list. Also I have checked cycle incase it is not DAG.

Task 1(b)

Firstly, I have counted indegree for all the nodes and then I have started BFS from the vertex which has indegree of 0; while exploring the neighbor of that indegree 0 vertices the indegree count will be decremented. Lastly, I have appended all the nodes in their topological order in a list.

Task (2)

This will be exactly same as task 1(a) but with a additional things which is when we explore the ~~graph~~ neighbor of a node we will go from low to higher value.

Task (3)

Firstly; we will create normal graph and transpose graph. In the normal DFS we will append the values in a stack and then in the Kosaraju algorithm we will pop the value from the stack and run DFS in the reverse graph then we get the answer.