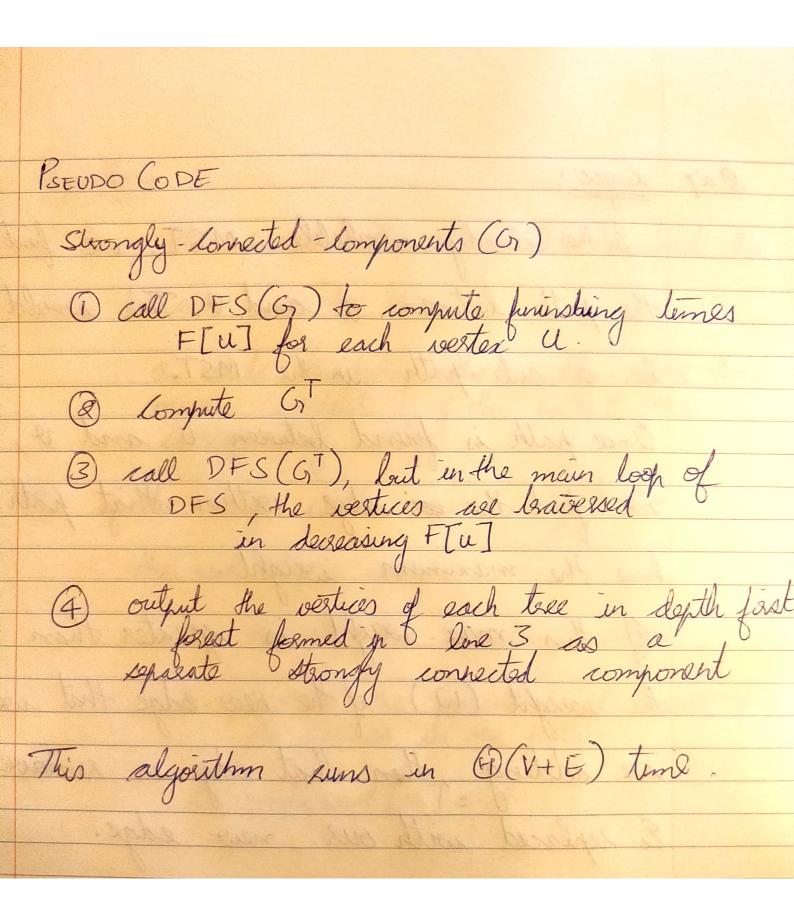
	ARSHITHA BASAVARAJ
	ASSIGNMENT7
1a.	To find the strongly consected components of
-1910	a graph G = (V, E), transport of G, GT is used.
Lossie	=> 6'= (V, ET) [O(V+E) to create this
	=> G'= (V, ET) [O(V+E) to create this language graph, GT]
	The reasoning is that Gr & GT have the
	The reasoning is that Gr & GT have the same strongly conhected components.
	i.e., of a E & are reachable from each other
A. Postkau	
	in by graph G, Hon U E V all also
1,338/22	seachable from each other in graph G.

Only then it they are strongly connected.

The strongly connected components of a directed graph, G can be found using two DFS 25's, one on G & one on GT.



In the already available MST, we find the path between u and v. This would be a sub-path in the MST. Once path is found between u and v, we find the se edge within that path that has the masumum weight. of this max weight is greater than the weight (W) of the new edge that we are adding, then that edge is semoved E replaced with our new edge.

Algorithm 1) Using the predecessed array TT[v] find the path between u to v. a. while tracking the path store the max. weight I of the path & the corresponding edge. the edge with max weight > the new edge's weight. a. Remove the existing edge b. Reverse the parents/predecessors of the vertices in the path C. predecessol [u] = V.

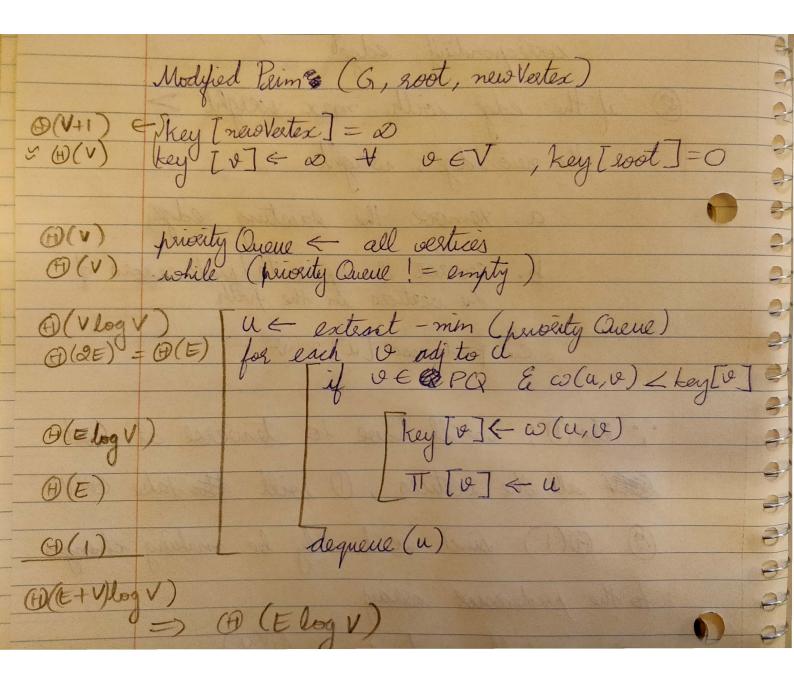
: Zol D, we'll have to travelal at most

set all the vertices, D will the take $\Theta(V)$ (2) $\Theta(1)$ since we'd only be making changes

to the predecessor array.

=) overall suntine is $\Theta(V)$

2b) Logic: By modifying the Prim's algorithm to have the new wester and initializing it's key to infinity Ee running the Prim's algorithm we get the updated MST.



Depending on the data structure use use and how dense the graph is huntime waries:

I mordered min-heap dished that EMV2 graph 3 dist EMV2 be (V2 log V)

EM a sparse graph 3 (V2) (V2 log V)

