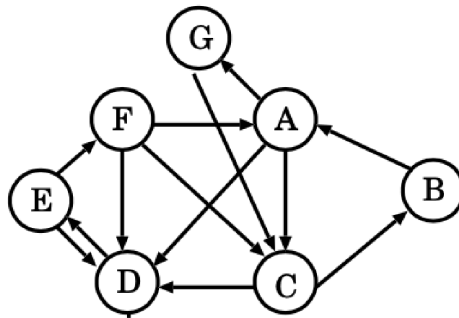


EL9343 Homework 8

(Due April 6th, 2022)

All problem/exercise numbers are for the third edition of CLRS text book

1. What is the running time of DFS if the graph is given as an adjacency list and adjacency matrix? Justify your running time.
2. Run DFS on the graph below, assume that DFS considers vertices in alphabetical order and the adjacency lists are also alphabetical order. Show the discover times and finishing times of each vertex in the graph.



3. Write a method that takes any two nodes u and v in a tree T , and quickly determines if the node u in the tree is a *descendant* or *ancestor* of node v
4. Draw the parenthesis structure of the dfs of Figure 1 (start from u , assume that DFS considers vertices in alphabetical order) and see the example parenthesis structure as Figure 2.

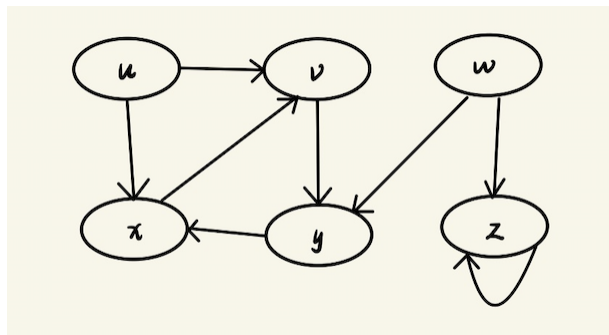


Figure 1

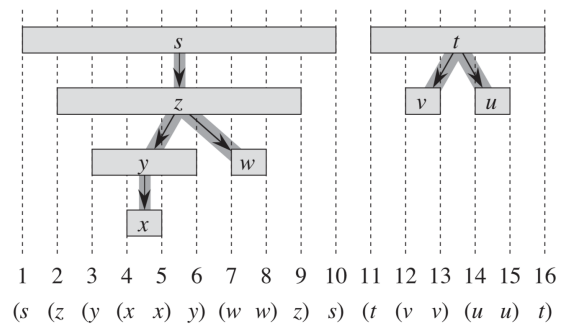


Figure 2