discover | finish

Exercises for 2021/10/19

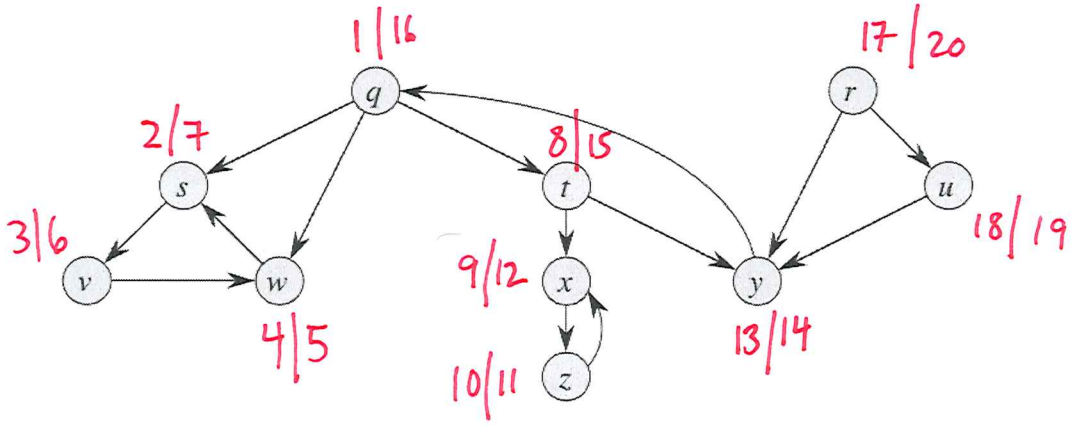


Figure 22.6 A directed graph for use in Exercises 22.3-2 and 22.5-2.

Complete the following exercises on a separate sheet of paper. Refer to the next page for DFS code.

22.3-2

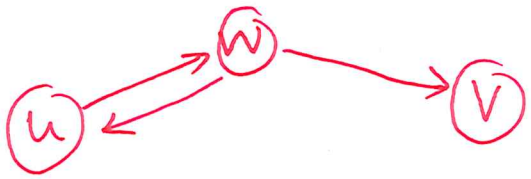
Show how depth-first search works on the graph of Figure 22.6. Assume that the **for** loop of lines 5–7 of the DFS procedure considers the vertices in alphabetical order, and assume that each adjacency list is ordered alphabetically. Show the discovery and finishing times for each vertex, and show the classification of each edge.

See above

22.3-9

Give a counterexample to the conjecture that if a directed graph G contains a path from u to v, then any depth-first search must result in $v.d \leq u.f$.

Counterexample:



	d	f
w	1	6
u	2	3
v	4	5

$v.d > u.f$ which contradicts the false conjecture