

CSCE 629 Homework 5

Homework 5 is due Monday, July 23 in class

Read Chapters 22, 23, 24 (omitting 24.4), 25. Turn in the following exercises.

1. Let $G = (V, E)$ be a directed acyclic graph. Show how to determine in $O(|V|^2)$ time, even if the graph is dense, whether or not there exists a pair of vertices u, v such that there are two different simple paths from u to v in G .
2. Problem 22-3, page 623
3. Show how to modify the data structures to improve the asymptotic running time of Prim's and Dijkstra's algorithms if it is known that the weights are positive integers less than $\lg(|V|)$. What is the running time of the improved algorithms? Justify your answers.
4. Exercise 24.2-3, page 657
5. Problem 25-1, pages 705-6