

CS477/677 Analysis of Algorithms
Fall 2007 – Dr. George Bebis
Homework 9

Due Date: N/A

1. **(U-required)** Exercise 24.1-3 (page 591)
2. **(U-required)** Exercise 24.3-2 (page 600)
3. **(U-required)** Here are the adjacency lists (with edge weights in parentheses) for a directed graph:

A: B(4), F(2)
B: A(1), C(3), D(4)
C: A(6), B(3), D(7)
D: A(6), E(2)
E: D(5)
F: D(2), E(3)

(a) This directed graph has three shortest paths from C to E. Find them (list the sequence of vertices in each path).

(b) Which of these paths is the one that would be found by Dijkstra's shortest-path algorithm? (give a convincing explanation or show the main steps of the algorithm).
4. **(U-required)** Exercise 24.3-3 (page 600)
5. **(U-required)** Suppose that you want to count the number of distinct shortest paths from s to u for every u in V . Indicate how you would modify the shortest path algorithms.