University of Washington

Department of Computer Science and Engineering

CSE 373

Monday, Dec. 7 12:30pm

Reading: Read Ch. 9 (skip Sections 9.4, 9.6 and 9.7).

1. (3 points) Exercise 9.5, part a. Note: Please show the steps Dijkstra's algorithm goes through using the format shown in Figs. 9.21 through 9.25 in the book.
2. (2 points) Exercise 9.7, part a.
3. (2 points) Exercise 9.15. A minimum spanning tree is "unique" if there is no other spanning tree (as defined by the edges it includes) with the same cost.
4. (2 points) Exercise 9.16
5. (1 point) Exercise 9.20. Simply explain in two sentences how you would modify one of the book's MST algorithms.
6. (6 points) Exercise 9.38, part b. You can assume that the *above* routine defined in part a. has been applied to the problem and for any two sticks s1 and s2 you know whether above(s1,s2) holds, or above(s2,s1) holds, or whether neither is above the other (i.e., the two sticks are "unrelated"). you may call any routine defined in the chapter.
   (a) How would you represent this problem to the computer? (please be specific!)
   (b) What algorithm from the book can be used to solve the problem given this representation?
   (c) What modifications (if any) do you need to make to the algorithm?