For all algorithm and data structure design problems, please provide elegant pseudocode and an adequate explanation of your methods. It is often helpful to include small examples demonstrating the method. Put your name at the top of each sheet of paper that you turn in.

1. Weiss 9.44. Be sure to argue for why the algorithm is correct. Hint: Pick an arbitrary node as the root, then consider the problem of finding the two leave nodes of maximum distance. The path won’t necessarily pass through the root.

2. Modify Dijkstra's algorithm so that if there is more than one minimum length path from the source to a vertex, one with the fewest number of edges is chosen for the previous pointers.