CS 312: Algorithm Analysis

Homework Assignment #19

Question 1 (6 points): For the following 4-city TSP problems assume that the initial BSSF is infinite and that the city cost/distance matrix is

∞	7	3	12
3	∞	6	14
5	8	∞	6
9	3	5	∞

This is the same as the previous homework and the initial state should start with the same reduced cost matrix that you did for the previous homework.

Use the include/exclude state search approach we discussed in class. This does not assume a particular start city, and at each branch chooses one edge to include/exclude from the solution. At each branch, choose the edge which maximizes bound($S_{excluded}$) − bound($S_{included}$).

Show the search tree that branch and bound would generate for this problem. Show each state including the reduced cost matrix and bound. Also show when *BSSF* is updated and use it for proper pruning, etc.

Question 2 (4 points): Question 9.3 from the book. See section 5.4 of the book for a definition of Set Cover.