

CS2402
Spring 2009
Lab 8
Weighted Graphs
Due Friday, April 30, 2009

Instructions

Part I

Write the following methods related to graphs:

- a) A method to read a weighted undirected graph from a file (see example in appendix) and store it using adjacency list and adjacency matrix representations.
- b) Minimum spanning tree
- c) Single source shortest paths using Dijkstra's algorithm

Part II

The Travelling Salesman Problem (TSP) consists of, given a list of cities and their pair wise distances, finding a shortest possible tour that visits each city exactly once. TSP can be modeled as a graph: the graph's vertices correspond to cities, the graph's edges correspond to connections between cities, and the weight of an edge is the corresponding connection's distance.

Write a method to solve TSP using backtracking and a stack

Appendix

Example graph file:

Vertices

El Paso

Ruidoso

Las Cruces

Edges

(El Paso, Las Cruces, 43)

(Las Cruces, Ruidoso, 120)

(El Paso, Ruidoso, 135)