Nick Tinsley
Programming Assignment 6
TSP with a Stack
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Abstract

In assignment six, we face the problem of finding the minimum spanning tree for different numbers of cities. We first must read in the adjacency matrix. This contains all the costs at each edge, and the costs to travel from one to another. It will find the shortest path to visit each city once. These results come up different than in lab 4 because it is approximating. It does not take long to come up with this approximation either. In lab 4, we could not even complete the 29 cities run, but in this assignment, we have an approximation almost instantly. Every run in this assignment gives an approximation of the cost very quickly, but in lab 4 the time took anywhere from a second up to twenty plus hours depending on the number of cities and paths that had to be checked. The costs are a little higher, but again this is finding the shortest path to reach each city once and not the cheapest necessarily.

12 Cities:
run:
0,5,7,4,9,1,8,10,3,11,2,6,
Cost: 1351
Time: 0.0418039580
BUILD SUCCESSFUL (total time: 0 seconds)

13 Cities:
run:
0,5,7,4,9,1,8,10,12,3,11,2,6,
Cost: 1476
Time: 0.0801138050
BUILD SUCCESSFUL (total time: 0 seconds)

14 Cities:
run:
0,5,7,4,9,1,8,10,12,3,11,2,6,13,
Cost: 1710
Time: 0.0587751810
BUILD SUCCESSFUL (total time: 0 seconds)

15 Cities:
run:
0,5,7,4,9,1,8,10,12,14,3,11,2,6,13,
Cost: 1835
Time: 0.0463484560
BUILD SUCCESSFUL (total time: 0 seconds)

16 Cities:
run:
0,5,7,12,4,11,1,8,9,3,14,2,6,13,10,15,
Cost: 2929
Time: 0.0667343550
BUILD SUCCESSFUL (total time: 0 seconds)

19 Cities:
run:
0,5,7,12,4,11,1,15,8,9,3,18,14,2,17,6,13,10,16,
Cost: 2618
Time: 0.0523356990
BUILD SUCCESSFUL (total time: 0 seconds)

29 Cities:
run:
0,27,23,20,5,7,12,26,4,11,1,15,8,9,19,25,3,28,18,22,14,24,2,17,6,13,10,21,16,

Cost: 3834
Time: 0.0726006130
BUILD SUCCESSFUL (total time: 0 seconds)