Algorithms Analysis and Design
April 2019

Lab 1

Preliminary task:

In this lab you will first be required to generate a random set containing a number of cities and a cost of travel between them. Your program should accept an integer as input representing the number of cities to generate. A number of paths should be made available for each generated set to complete a "Hamiltonian path" starting from a city and returning to it after visiting all others.

Main task:

Use the brute force algorithm to generate brute force solutions for each of the sets. Vary the size of the input (number of the cities) and make a conclusion as to the time and space complexity of the brute force strategy.

During the demonstration you will be asked questions about:

- The algorithm that you have used
- The data structures used to implement your algorithm
- The time and space complexity of the algorithms as a function of the dataset that you have generated in the preliminary exercise.
- The time and space performance of your solution using the brute force strategy employed