CS 5311 Assignment 3

Due on Tuesday, Mar.26, 2013

Each student is required to do this assignment **individually** and to hand in a hard copy of your solution on due date. Computer typeset for the solution is preferred. Hand written is also acceptable, but request to write clearly.

Put your Name, Student Number, Course Number (CS 5311) on your answer sheet.

Assignments which are not met the above requirements will not be marked. The score of the assignment will depend on:

Specification and documentation: 10 %

Correctness: 90 %

Late assignments will be penalized and will not be accepted after 3 days.

Problem 1.

Write a computer program to implement $GraphicSequence(d_1, d_2, \ldots, d_n)$. Input a list of non-increasing inter sequence $\langle d_1, \ldots, d_n \rangle$, output "TRUE" if it is a graphic sequence, "FALSE" otherwise. Try to input the follows:

1. $\langle 9, 8, 8, 7, 7, 7, 7, 7, 6, 6, 4, 4 \rangle$.
2. $\langle 7, 7, 6, 6, 5, 4, 4, 1 \rangle$.
3. $\langle 7, 6, 6, 6, 5, 4, 4, 2 \rangle$.

Problem 2.

Write a computer program such that when input a graphic sequence, then it outputs an adjacent matrix of a simple graph which realize the graphic sequence. Try to input $\langle 7, 6, 6, 6, 5, 4, 4, 2 \rangle$.

Problem 3.

Characterize the class of connected graph G such that for every edge $e \in E_G$, the graph $G - e$ is a tree. Explain why you characterize it in this way.

Problem 4.

Use Dijkstra's algorithm to find out the shortest paths in the following graph starting from s.