Homework #4: Shortest Path Routing

Due date: May 27, 2018

In this homework, you are asked to write a MATLAB program to find the distance matrix via the short path routing algorithm in the lecture notes. Please download the adjacency matrix of network A (network_A.mat that contains a 100x100 matrix named "A") on ILMS.

1. The matrix A is the adjacency matrix of a network with 100 nodes.

   - A(i,j)=1, if there is an edge between nodes i and j.

   - A(i,j)=0, otherwise.

2. Please use matrix A to find the final distance matrix d (Global View).

   - d(i,j) is the distance (of the shortest path) from node i to j.
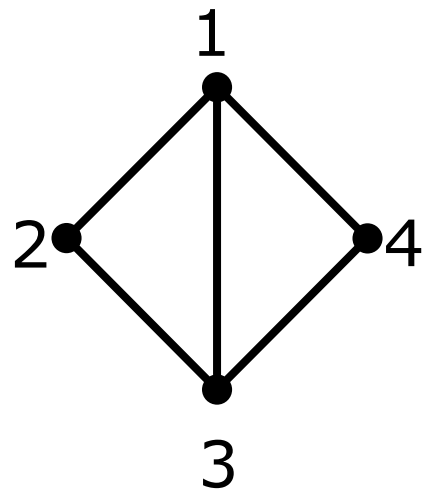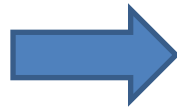

Upload two files to ILMS.(Please code by matlab.)

1. source code file named "code.m"

2. result data file named "result.mat" that contains the following

   - distance matrix named "d".

Other requirement:

   - You should use "load" to get inputdata.

   - Programs should have comments.

Example:

$$A = \begin{array}{c c} & \begin{array}{c c c c} 1 & 2 & 3 & 4 \end{array} \\ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \end{array} & \left[\begin{array}{c c c c} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 1 \\ 1 & 0 & 1 & 0 \end{array} \right] \end{array}$$

$$d = \begin{array}{c c} & \begin{array}{c c c c} 1 & 2 & 3 & 4 \end{array} \\ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \end{array} & \left[\begin{array}{c c c c} 0 & 1 & 1 & 1 \\ 1 & 0 & 1 & 2 \\ 1 & 1 & 0 & 1 \\ 1 & 2 & 1 & 0 \end{array} \right] \end{array}$$