Tutorial 6

Graphs Part-2

BT3017

Due date: 14th March 2022 (Monday) 2359 hrs

Semester 2, AY21/22, School of Computing, National University of Singapore

IMPORTANT:

For this tutorial, you are supposed to submit your project file to LUMINUS.

Instruction for submission:

- *Create a folder using the following naming convention:*

  StudentNumber_yourName_Tut6

- *Put your python file and also the results in this folder.*

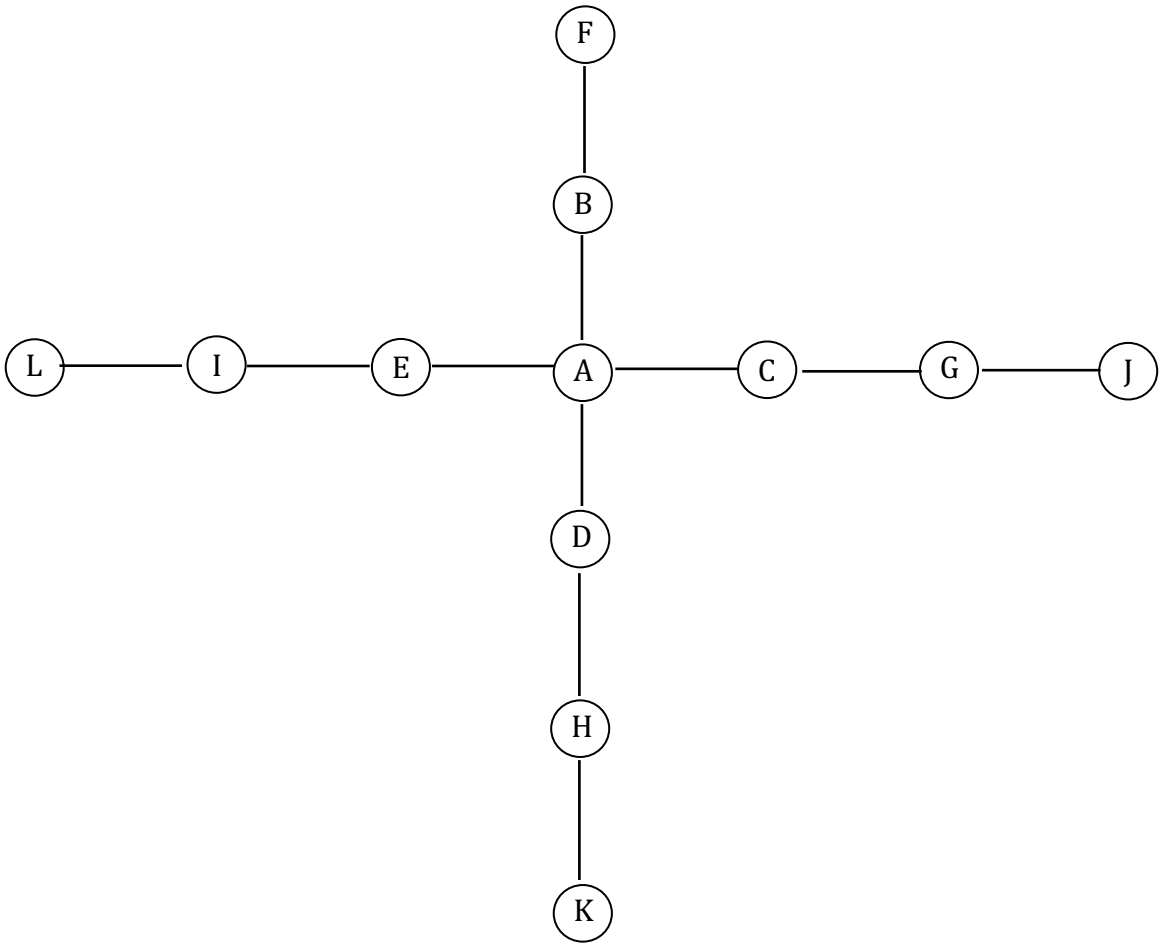
- *Zip your folder. Name your zip file using the following convention:*

  StudentNumber_yourName_Tut6.zip

  For example, if your student number is A1234567B, and your name is Chow Yuen Fatt, for this tutorial, your file name should be A1234567B_ChowYuenFatt_Tut6.zip

- *Submit the zip file in the "Tutorial-6 Submit Here" folder in Luminus.*

The Figure below shows a graph of 12 nodes.



Perform the following:

(A) Form the adjacency matrix A

(B) Form the degree matrix D

(C) From the Laplacian matrix $\mathcal{L} = D - A$

(D) If the initial values of the nodes are

$x = \{A, B, C, D, E, F, G, H, I, J, K, L\} = \{1,0,0,0,0,0,0,0,0,0,0,0\}$

Compute $\mathcal{L} * x,\ \mathcal{L} * \mathcal{L} * x,\ \mathcal{L} * \mathcal{L} * \mathcal{L} * x$