Tutorial 5

Graphs – Part 1

BT3017

Due date: 7th 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_Tut5

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

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

  StudentNumber_yourName_Tut5.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_Tut5.zip

- *Submit the zip file in the "Tutorial-5 Submit Here" folder in Luminus.*

Note: you should not need to pay for the website recommended.

Q1   Figure 1 shows a graph of 12 nodes.

Write a python program to enable the following:

(a) Find out how many connected clusters of nodes are there. You can comment based on the eigen-decomposition results i.e. no need to write code in interpreting the eigen-decomposition results.

(b) For each cluster, list the nodes within that cluster. You can comment based on the eigen-decomposition results i.e. no need to write code in interpreting the eigen-decomposition results.
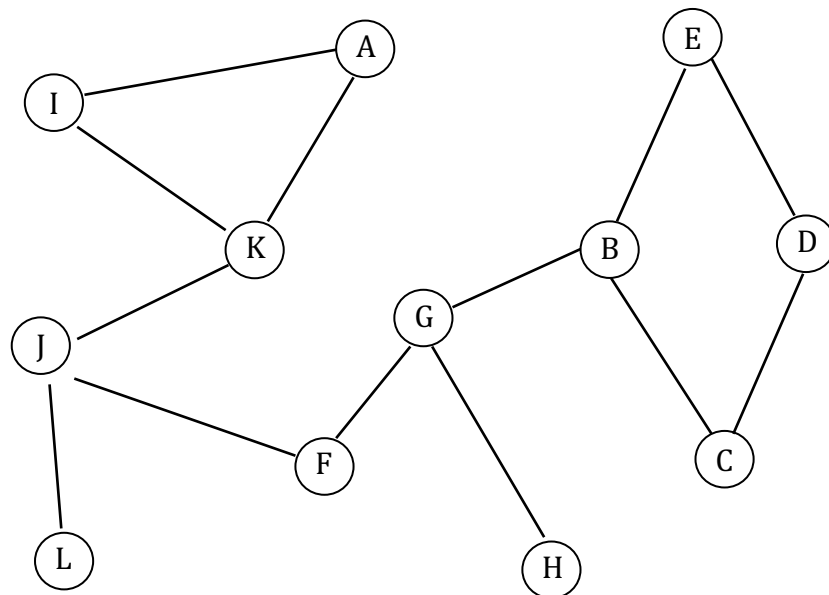

Figure 1 A Graph of 12 nodes

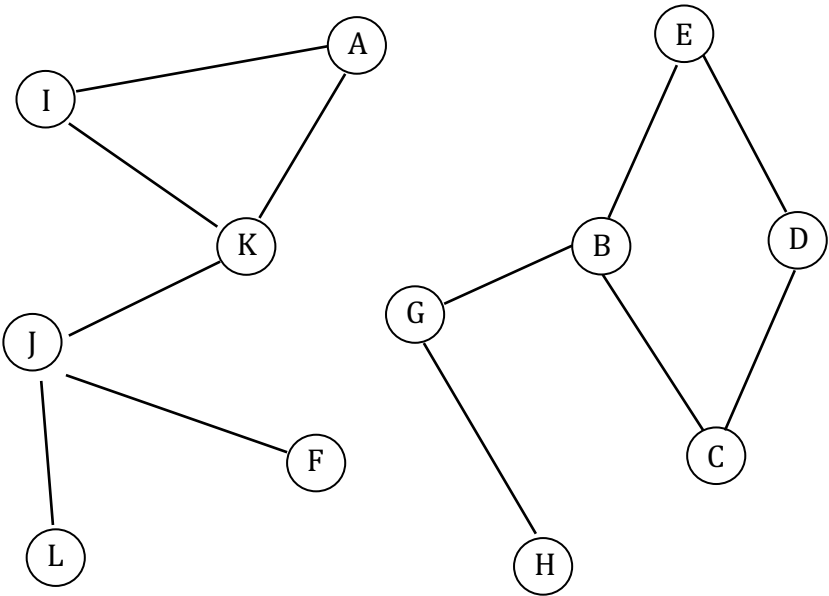Q2. Repeat all the steps in Q1 for the graph shown in Figure 2.

Figure 2 A Graph of 12 nodes
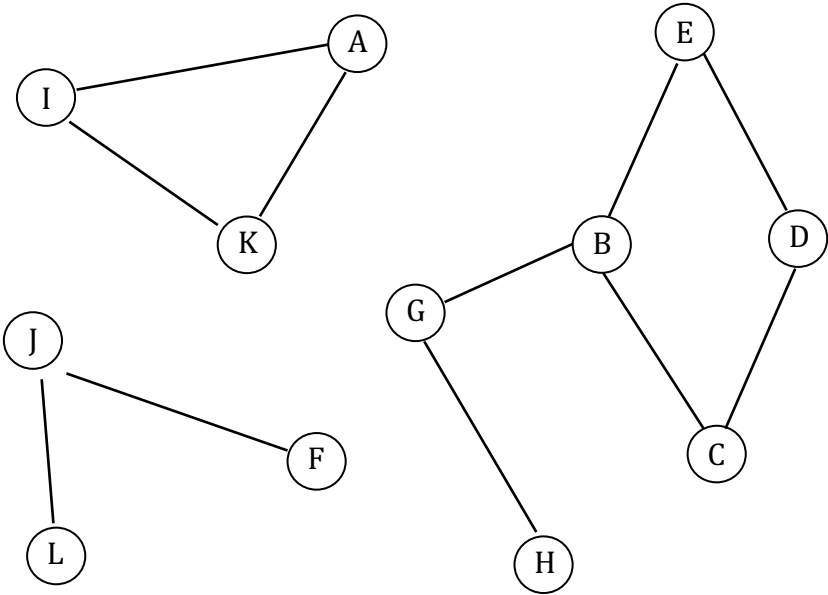
Q3. Repeat all the steps in Q1 for the graph shown in Figure 3.

Figure 3 A Graph of 12 nodes