MSIA 430: Introduction to Software Tools for BI

Spring 2023

Rolling-Assignment-1

Purpose: This assignment is intended to walk you through the basic concepts of GraphDB
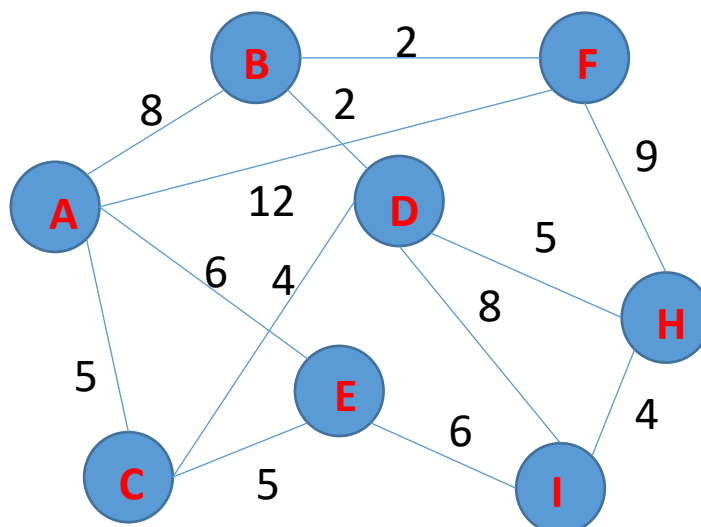
NOTE: you can work in teams of two students, and (when the time comes…) one submission per team is sufficient – however, you need to make sure to include the names all the team members in the submission. Typed solutions are strongly preferred (no illegible handwriting, please – if you have to, make sure that whatever portion is handwritten in your solutions, it is done neatly…).

NOTE: No need to upload/submit anything for this particular assignment – it is posted now just to "keep you in shape" and help you manage your time better. There will be another set of problems posted, and you will merge the solutions to this one with the next assignment. So, have it ready and submit it as part of that "to-be" assignment.

Problem-set:

1. (15 pts.) Describe briefly:
   a. What are the differences between *adjacency matrix* and *incidence matrix* (as graph representation methodologies).
   b. The concept of *node centrality*.

2. (35 pts.) Consider the weighted graph shown in the picture below. What is its diameter (aka span?

Problem 3. (50 pts.) Consider the schema of a GraphDB shown in Fig. 1 below

Write the Cypher syntax for the following queries:

1. *Retrieve the names of the customers who have purchased chocolate.*
2. *Retrieve the email addresses and the credit card numbers of customers who have purchased beer.*