Lab week 2 (ISYS2120 sem2 2022)

Welcome to the labwork for ISYS2120. Each week you have a 2-hr long lab, in which you will typically spend some time doing or discussing tasks related to lectures (such as Conceptual Design or Relational Algebra), then there will be some time for working on SQL through the SQL Challenge material.

If you are at an on-campus lab session, please follow all COVID rules as in force at the time. Please keep a distance between yourself and others. It would be good if you wear a mask (however, at the time of writing, the University does not require this). If you feel unwell, do NOT come on campus; instead you can try to join a remote lab for the week (see below).

Please try to attend the lab session that you are scheduled for. If necessary, you can try to come at a different session (the times/places are listed on the unit Canvas site); ask the tutor if they agree to you being present.

For week 2, here are the activities

A. Getting to know one another.
One of the wonderful things about studying at University of Sydney is the opportunity to study in units with students from a range of degrees and career paths. The lab will start by everyone introducing themselves to the class, describing their interests, and background. We will then spend a little time so each student can get to know someone different from themselves. If you are in a Zoom lab, we hope you will be willing to turn on your camera for this part of the time (however, that is not a requirement).

B. Form groups for Assignment 1
We will release the instructions for assignment 1 in next few days, but you are required to form groups in this lab session. You should aim to form a group with 4 people (2 or 3 if necessary). Note that the unit coordinator and the lab demonstrator have final say; they can re-arrange groups as necessary. For in-person labs, group formation will be initiated by students self-organising; for Zoom labs (RE stream), groups will be formed randomly using the breakout room mechanism. Once you know who is in the group, you should exchange contact details (uni email, social media, etc); also make sure everyone knows good times to contact you, and the group has arranged a first meeting!

C. Understanding a conceptual data model.
Look at the following ER diagram (using the notation from lectures, also used by the book Bernstein-Lewis-Kifer)
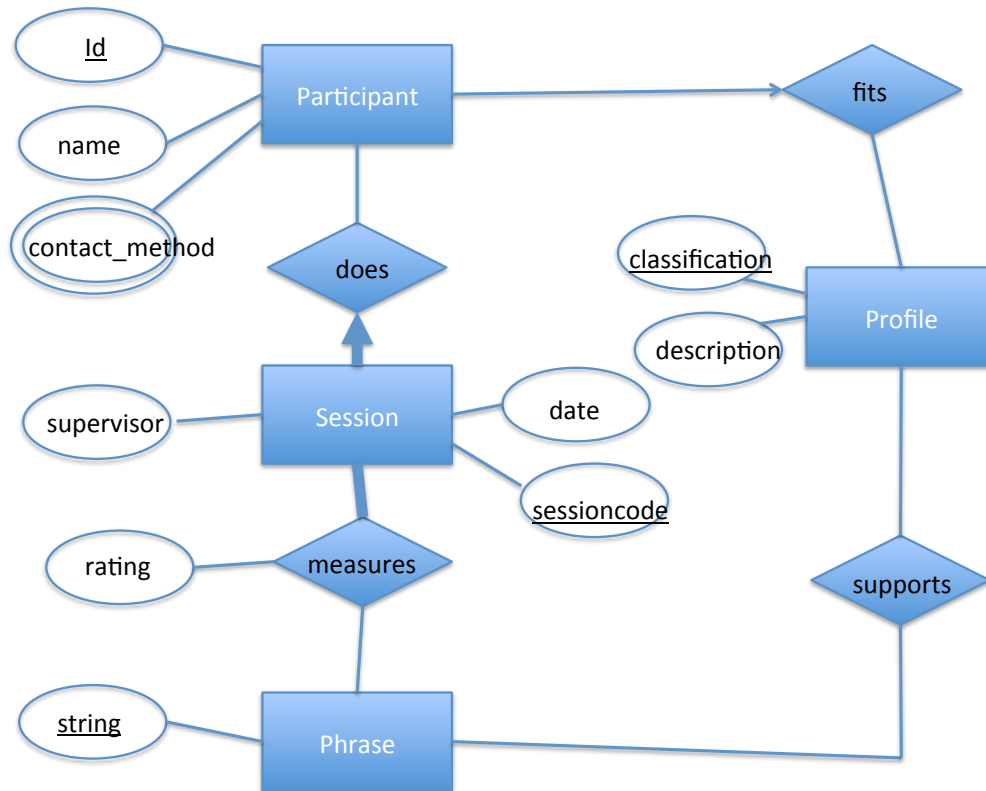
The domain here is a psychology lab where personality tests are done. In a testing session, which occurs on a date and is given under the supervision of a staff member, a participant is shown some phrases (for example, "I often leave work till too late" or "I like to meet new friends"); the participant is asked to say a rating, on a scale of 1 to 7, indicating how much they agree with each phrase as a description of themselves. The lab attempts to identify for a participant, when they as having a personality profile (such as "narcissist" or "charismatic leader"). A phrase that is used in testing can be seen as supporting evidence for belonging to some profiles.

First, look at the ER diagram and answer the following questions
(a) For a Participant, the attributes are Id (which is the key), name, and a multivalued attribued contact_method. One example instance might be a participant whose Id is 76, with name "Jane Carter" and contact methods {"phone 04030356" and "email jane20@gmail.com"}. Give another example instance that could exist. Does the model allow the lab to deal with several participants with the same name?
(b) Look at the relationship "does". Which of the following is a true statement, based on the diagram?
      (i) every participant does at least one session
      (ii) every participant does at most one session
      (iii) every session is done by at least one participant
      (iv) every session is done by at most one participant
Based on this understanding, give some other facts that could be true at the same time as "Participant 57 does a session with code 687." Give somefacts that could not be true at the same time as this.

(c) Look at the relationship "measures". Which of the following is a true statement, based on the diagram?

      (i) every session measures at least one phrase

      (ii) every session measures at most one phrase

      (iii) every phrase is measured in at least one session

      (iv) every phrase is measured in at most one session

(d) Suppose that the domain experts tell us, that a phrase can show support for only one profile. How would you change the diagram to indicate this?

(e) In the diagram, the attribute "rating" is placed on the relationship "measures". What would be the difficulty, if rating were instead shown as an attribute of Phrase?

(f) Suppose the lab wants to expand its services, and it will now do career planning. They know that certain personality profiles are suited to particular jobs, and they want to know whether the participants have jobs for which they are suited. How could you adjust the ER diagram, to keep this information too.

D. SQL Challenge

(Individual work) Follow the link from the unit's Canvas site to the first SQL module on GrokLearning, and start working through this (reading the explanation "circle" pages, and then trying the challenge "diamond" pages as you get to them. Ask your tutor for assistance if you hit any difficulties. You need to work on the second and third modules as well, as you ought to get all the questions correct from these three modules before they are due at the end of the week, but it's OK if you finish this off after this week's class. You have a module correct, and get the point from this Task for your grade, once every diamond in the module is showing as green. Note that you should access the second module from its own link; don't just continue on the GrokLearning site from pages of the first module; and similarly, go back to Canvas to get to the third module).

After the lab session

Before Sunday August 14, you need to finish the assessments that are due(SQL Tasks 1,2 and 3; Quiz1, Quiz2). Also, please read the instructions for Assignment 1 when they are released, and do the "Week 3 progress work" as an individual, to bring to your lab in week 3 (to show for feedback, and as evidence so you will get your individual contribution mark from this assignment)