Lab week 5 (ISYS2120 sem2 2022)

Welcome to week 5's lab. This week we are going to adjust the groups, to be ready to start Asst2. As well, we will look at some issues when creating ER diagrams, with a particular focus on learning to spot (and hopefully, how to avoid) some common mistakes.

A. Group adjustment for Asst2

In week 5 lab, you should form a group. It is common for people to stay with the group they had joined in Asst1, but it is not necessary. There will be separate Canvas groups for this assessment; we will initialize them as copies of what were formed for asst1, but membership can change as described below. If any student wishes to not be with their asst1 team, they can simply remove themselves from the initial group; this should also be done if you were in a group from a class that you will not be attending in future. The lab demonstrator will then work with anyone who is unassigned, to form groups properly. If necessary, the demonstrator or coordinator may also rearrange group membership.

B. Considering ER diagrams

Think about the situation of a student sports club, which has student members each of whom play a variety of sports (400m freestyle swimming, 10 km bicycling, frisbee, etc). The club arranges many events, each event being a competition which is an example of a particular sport, and held at a single date (for example, one event might be a heat of 400m freestyle, as an example of swimming). A number of events together form a competition, which has a winner among the competitors. Some of the sports (eg frisbee) have competition between named teams, rather than event being entered by individual students; and for these team sports, in each event one team will be made up of a collection of many students (note that the same team can consist of different students on different events!). Each event can set an entry fee, which each competitor must pay before entering in the event.

Here is what Fred Foolish has produced, to capture the data relevant from the domain above, in a conceptual data model. WARNING: this is not a very good model; there are several ways it is not capturing things from the description!
There will be an entity type for the students who are members of the club. The attributes will be SName, Phone and a collection of Roles (such as President, Treasurer, Executive). It is possible for Students to have the same name, but the phone number is different for all students.
There is an entity type for the teams which compete; the attribute is the team name, and there is also a relationship to the students who are members of the team.

There is an entity type for the Sports which the club offers, with unique name and another attribute of entry fee.

There is a weak entity type for the events, with attributes for the date, title, and winning competitor, with date as the discriminator, depending on Sport as the main entity.

There is a relationship type to indicate when a Student plays a Sport; a Sport can be played by zero or more Students, and each student who is in the club plays one or more sports.

There is a relationship type for indicating which Events each team enters; this is many-to-many.

Mary Mistake now produces a diagram, to visually present the conceptual model Fred has explained to her. WARNING: this diagram is not done in line with the basic notation of ER diagrams, as taught in isys2120!
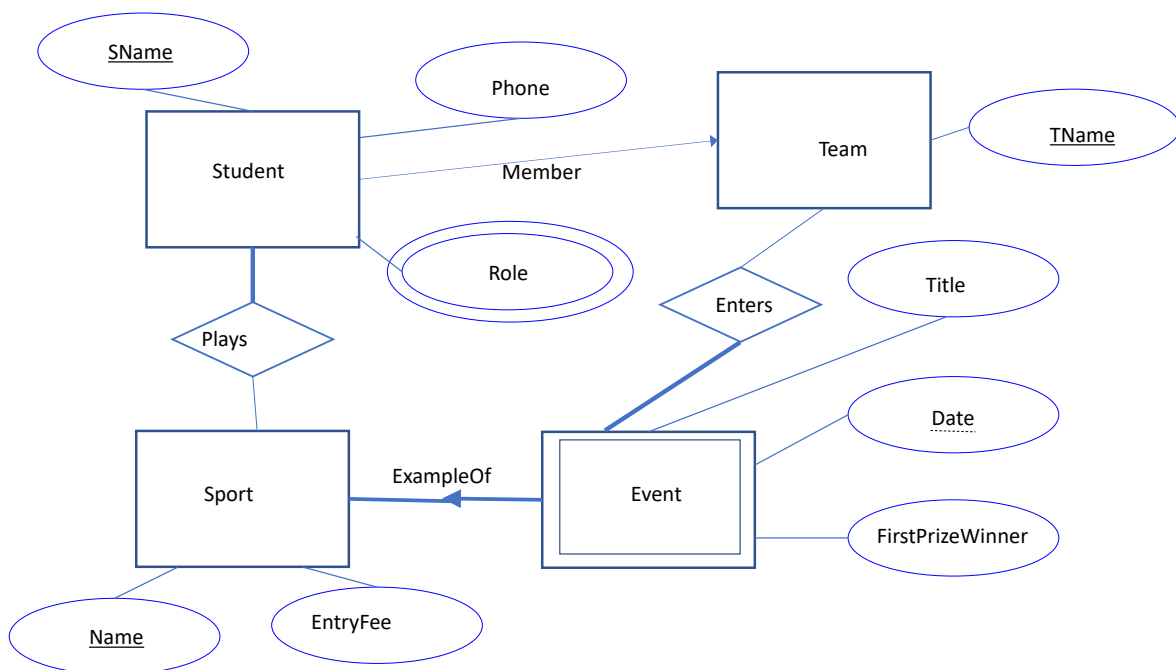
a) What parts of Mary's diagram do not obey the basic rules of ER diagrams?

b) What are some aspects of Fred's conceptual model that are not sensible or appropriate choices for the domain facts as described above?

c) Produce a better conceptual model expressed as an ER diagram that uses notation correctly.

Before the end of the week
Before Sunday September 4, you need to finish the assessments that are due (SQL Tasks 7, 8 and 9; Quiz5).
[Before next week's lab, make sure you produce what is needed for the week 6 individual progress on assignment 2.]