Introduction to Database Systems

EECS3421-B

York University

Fall 2019

Project 2

In this project, you are to

1. *Create* the relational *schema* (and tables) based upon an E/R design which we are providing (Figure 1).

The Conceptual Design

This conceptual design is a simplified E/R schema from Project #1 for the CIPA domain.

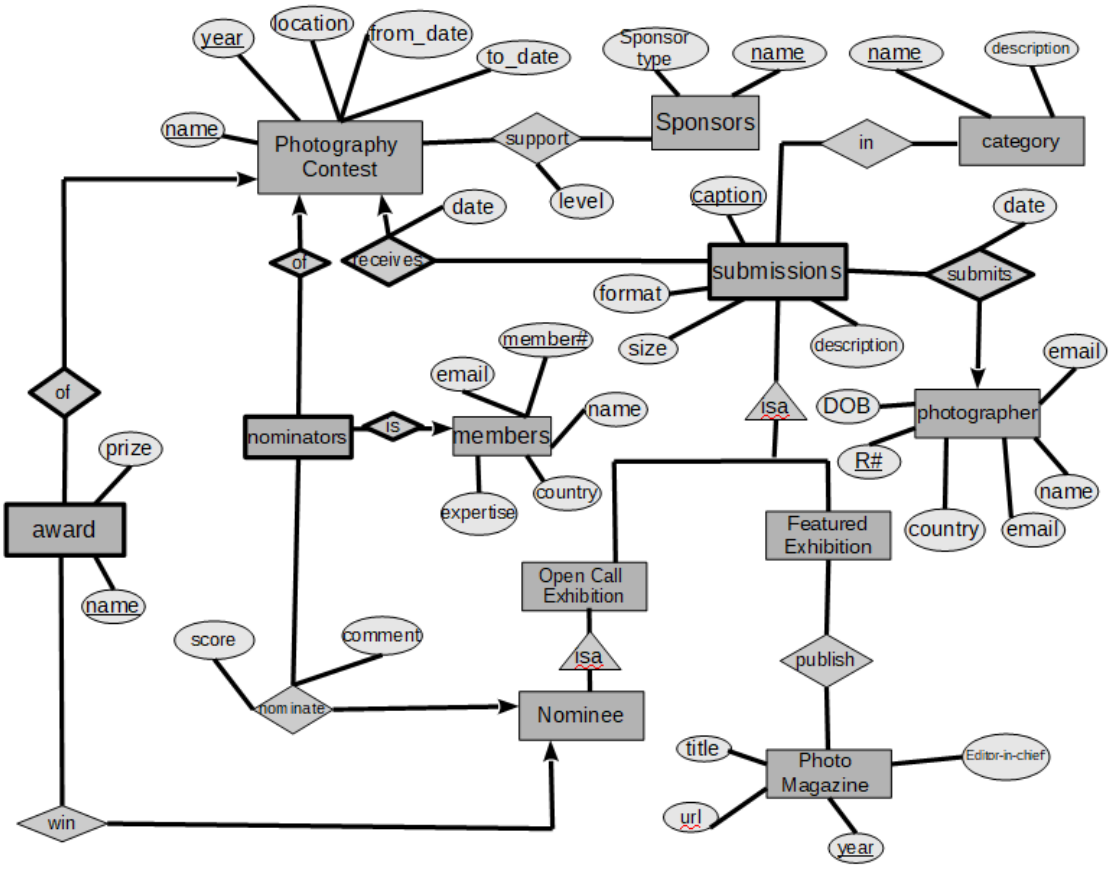

Figure 1

Part A (The Relational Schema)

Translate the above E/R diagram (Figure 1) into an "equivalent" relational model.

- Specify the relational schema of each entity
- Specify the primary key on each relation
- Specify any foreign key references to other relations

Choose appropriate domain types — `integer`, `date`, `varchar(…)`, etc. — as is appropriate, or as when dictated below. Key attributes and ones in *italics* in the E/R diagram should be declared as *not nullable*.

For attribute and relation names, carry over those from the E/R diagram where you can, and make sensible choices where you cannot.

Part B (The Relational Schema - SQL)

Translate the relational schema in the relational model from Part A into an "equivalent" relational schema in SQL (the *data definition language*, DDL). Do not create any tables that are not needed. Declare *primary keys* and *foreign keys* per table appropriately to capture the logic of the E/R diagram and the relational model correctly.

Choose appropriate domain types — `integer`, `date`, `varchar(…)`, etc. Key attributes and ones in *italics* in the E/R diagram should be declared as *not nullable*.

For attribute and table names, carry over those from the E/R diagram where you can, and make sensible choices where you cannot.

Examples

- **Raccoon Rapsody Database**

  As an example of an SQL schema script, see rrdb-create, the SQL schema script for the *Raccoon-Rhapsody* database from EECS-3421A in *fall 2016*. (This database was used for the project to write SQL queries.)

  Note that this file has both the schema *and* the data in the same file; you are asked to put these in separate files for your schema and data, however.

  The file rrdb-drop is a simple file of SQL drop commands that clears out the RRDB database. You may find you want to make a "drop" file too for your Episode database, as you will likely find the project is quite iterative.

- **Quest Schema**

  Project #2, *Creating the Quest MMORPG Database*, was the equivalent project to this one from EECS-3421A in *fall 2016*. You can look it over as an exercise, and as an example for doing this project.

  Note that the E/R in that project is a simplified schema from what the class did for their E/R design ("Project 1-A"): Project #1: Loot! And the RRDB database was then a variation on this.

  Solutions to the *Quest Project*:

  - quest-schema
  - quest-drop
  - quest-data
  - quest-query
  - quest-answer

Deliverable

Submit

- An electronic copy of Part A of your project (schema.pdf) in **PDF**. (Note that submission of anything but **PDF** will be rejected!)
- An electronic copy of Part B of your project (create.sql) in **PDF**. (Note that submission of anything but **.sql** will be rejected!)

The ***create.sql*** script is a text file with ***.sql*** extension containing a sequence of SQL (DDL) statements to create your database tables and constraints in **DB2**.

You also need to hand in a printed version of both Part A and B of the project as your project report.

Online Submission Due: by *11:59pm Monday 28 October 2019*.

In Class Submission Due: *10:00am Tuesday 29 October 2019.*

Your project report should include the following.

- **Cover Page**
  A *cover page* should have your name and student#, and should indicate it is for the *E/R Project* of **EECS-3421B** for *Fall 2019*.
- **Part A (Relational Schema)**
  Your relations, primary keys, and foreign keys mapped from the given ER.
- **Part B (SQL statements)**

  Your DDL statement to create all tables and their constraints from Part A.

- **Documentation (optional)**
  Paragraphs explaining details about the project.
  - Any clarifications about your relational schema and constraints.
  - Any constraints (business rules) apparent from the requirements that you are unable to specify using the relational model in Part A.
  - Include the notes in your pdf submission.

Your project must be *typeset*; that is, no *hand-writing* submission. The cover page for submitting your work should look something as follows.

Student#:
Sur (Family) Name:
Given Name:
Class: EECS-3421B
Term: Fall 2019
Project: Relational Schema

Call your PDF file "schema.pdf". Submit online your *schema.pdf* and *create.sql* files as follows.

```
% submit 3421B p2 schema.pdf create.sql
```