

Introduction to Database Systems

EECS3421-B

York University

Fall 2019

Project 1

In this project, you are to develop an *entity-relationship schema / diagram* for the **Canadian International Photography Award** domain described below. Draw an E/R diagram, clearly identifying the

- *entity sets,*
- *relationship sets,*
- *multiplicity (e.g., many-one's & many-many's),*
- *attributes,*
- *keys, and*
- *additional constraints*

In this project, we use the notations and diagramming rules — the *Stanford dialect* of E/R — as described in the textbook and in class.

E/R Dialects (Warning!)

The textbook and our examples in the lectures use the Stanford style of E/R modelling. Note that there are many dialects of E/R, however. For consistency, for *this* project, you *must* adhere to the Stanford (the textbook's) dialect.

Canadian International Photography Award (CIPA)

The *Canadian International Photography Award* is an annual photography competition. The Canadian International Photography contest is held by Canadian Photographer Academy each year. *CIPA* celebrates outstanding standalone photos and images from around the world. The annual contest provides an opportunity for Canadian and international photographers and artists to enrich their career, and propelling them to an ever higher level of image-making profession. Each year, the *CIPA* contest is supported by various sponsors. Different sponsors from around the world support one or more CIPA annual contests. Each sponsor chooses a level of sponsorship for the year of contest that they want to participate.

Photo Submissions:

Each year, Canadian and international photographers can submit their photos to the CIPA contest. Each photographer can submit multiple submissions to different photo categories. A submission may be assigned to multiple categories.

To submit photos, a photographer needs to register once and provide the following information:

- Name
- Date of birth
- Country
- phone
- email

When registration is completed, a unique registration ID will be issued for each photographer. The registration ID can be used for future submissions and future CIPA contests. A photographer that has registered before does not need to register again.

The following information is required for a submission (photo/image):

- Caption
- Size
- Format
- Description

Each submission can fall into one or more of the following photography categories:

- Landscape
- Wildlife
- Sports/Action
- Portrait
- Architectural
- Fashion

In the submission process, a photographer chooses a submission to the *Featured Exhibition* submission or the *Open Call Exhibition* submission.

Featured Exhibition Submissions

The *Featured Exhibition* submissions will be in a competition to win the **CIPA** Annual Awards.

Open Call Exhibitions Submissions

Some of the Open Call Exhibition submissions may be published in the Canadian Photo magazine for the year of the CIPA contest. The Photo magazine is published once a year. Each magazine has a title, the name of the Editor-in-chief, and an URL (the link to the magazine website for that year).

CIPA Photography Award Members

CIPA invites experts in the fields of art to join CIPA as members. The first time an expert becomes a member, a unique member ID is assigned to them.

A member of the CIPA may participate in CIPA contest over different years. A member can be either a silver or a golden nominator. CIPA stores the member information such as name, email, address, and the area of expertise.

CIPA Silver Nominators

Silver nominators are CIPA members. They nominate submissions submitted as *Featured Exhibition* submissions. Each silver nominator nominates a single submission to be added to the *Silver* list. The silver nominator adds her/his comments and a score for her/his nominated submission to be in the Silver list (nominees). These nominees will be later selected by golden nominators to be added to the Golden list as candidates of the CIPA awards.

CIPA Golden Nominators

The golden nominators are also CIPA members consist of national and international experts working in the field of art and photography. Golden nominators select the final nominees from the Silver list to be added to the Golden list for the final competition. They add comments about the selected Golden nominees to highlight the excellent technical, creative skills, and exceptional qualities of each nominee. Each golden nominator selects one nominee from the Silver list to be added to the Golden list. The final award winners of the year of contest are selected from the Golden list.

CIPA Photography Award Nominees

First, the *Featured Exhibition* submission are nominated by the silver nominators and will be added to a list named the Silver list. Later, the nominees in the Silver list will be selected for the final evaluation by the golden nominators be added to the Golden list.

CIPA Photography Awards

Award Name	Prize
• Diamond Image Award	\$100,000
• Golden Image Award	\$70,000
• Royal Image Award	\$40,000

CIPA award winners are selected from the nominees in the Golden list. The prize of each award could be different in every year contest. A nominee from the Golden list can win multiple awards in the year of the competition. An award, however, can be won by exactly one nominee from the Golden list for that year.

Design Considerations

This design exercise is meant to simulate a real life system-analysis situation; hence, the domain description above is unstructured, and sometimes fuzzy. It is your responsibility as an analyst / designer to translate what you read into a proper E/R diagram that models the domain correctly.

Keep the following things in mind for your design.

1. In real life, many more data elements than described in the “requirements” above would be needed to build a useful database. We do not, however, want to turn this project into something huge. So keep in mind that this is a *highly* simplified case.
2. As a general approach, if a particular constraint is not explicitly given, then assume the least restricted situation. For example, “many” in the E/R Model is less restricted than “at most one”.
3. You are not required to specify the *domains* of the attributes here in your diagram.
4. Make certain that you clearly indicate any constraints in your design that are *additional* to those captured in the logic of your E/R diagram.

That is, state any constraints that are indicated by the requirements, but that you know are not enforced by your design in brief documentation attached with your design. For each such case, explain whether the unenforced constraint is

- beyond the scope of E/R,
- seems to be beyond the scope (but you do not know for certain),
- would greatly complicate the design beyond value, or
- is simply not accommodated in your design.

Deliverable

Submit an electronic copy in **PDF** of your project. (Note that submission of anything but **PDF** will be rejected!)

You also need to hand in a printed version of your project.

Online Submission Due: by 11:59pm Thursday 3 October 2019.

In Class Submission Due: 10:00am Friday 4 October 2019.

Your PDF document 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*.
- **E/R Schema**
Your full E/R diagram for the *CIPA* database.
- **Documentation**
Paragraphs explaining details about the design.
 - Any clarifications about your E/R diagram that are not evident in the model itself.
 - Any assumptions that you had to make with respect to the requirements. (In the real world, these would then be resolved in a follow-up requirements meeting.)
 - Any constraints (business rules) apparent from the requirements that you are unable to model via your E/R schema.

The documentation may be minimal — or even absent — *if* your model has no such needed clarifications.

Your project must be *typeset*; that is, no *hand-drawn* diagrams. 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: E/R Schema

Call your PDF file “CIPA.pdf”. Submit online your PDF as follows.

```
% submit 3421B er CIPA.pdf
```

Matching Requirements

We suggest working on your design iteratively, little by little. E/R is a refinement process. Get a rough sketch of your design first. Then improve on it to fix issues as you find them.

Diagramming Software

There are a number of professional tools companies use for E/R, but many are rather expensive and specialized. They often provide lots of additional functionality, such as verifiers and automated tools to help translate to relational.

Many generic drawing packages that include diagram / semantic support work nicely, however. Some suitable applications good for drawing E/R are

- [LibreOffice](#) (its Draw facility) of [The Document Foundation](#),
- [The Dia Diagram Editor](#),
- Microsoft Visio, and
- OmniGraffle (The Omni Group),

Visio and **OmniGraffle** are great, but somewhat expensive proprietary drawing and generic diagramming applications. **Dia** is not bad, and is free and open source software under the [GNU General Public License version 2.0 \(GPLv2\)](#), which we used to use. We recommend LibreOffice, which is excellent free and open source software under the [Mozilla Public License \(MPLv2.0\)](#).

Some of the diagramming packages may be missing one or two things kind of needed for E/R. For example, there seems to no easy way to underline text in Dia, but key attributes should be underlined. In this case, you could use bold for key attributes (and partial key attributes in weak entities), instead. Just make note in your E/R design document *any* such notational changes that you make due to drawing-application limitations. Pick some reasonable, obvious convention for your arrowheads, following the textbook's style, the class's lecture style, or something that is *obvious* and similar.

Practice

Look through the examples in the exercises linked below, and previous E/R projects.

- E/R project from *winter 2019*:
 - [E/R: Episodes](#)
 - [a solution](#) (Provided at the beginning of the subsequent project.)
- E/R project from *winter 2018*:
 - [E/R: Episodes](#)
 - [a solution](#) (Provided at the beginning of the subsequent project.)
- E/R project from *fall 2016*:
 - [E/R Project: Loot!](#)
 - [a solution \(PDF\)](#)
 - [an extreme solution \(PDF\)](#)