CMPUT 291 - File and Database Management (Winter 2022)

Assignment 1 Spec

CMPUT 291 - Winter 2022
Assignment One

(group assignment)

Due date: Jan 26, 5pm (submission details)

Clarifications:

- **Jan 20**: Here is a marking rubric for the assignment.

Introduction

The goal of this assignment is to reinforce the concepts of database design using Entity-Relationship (ER) model and mapping an ER model into a relational model. This assignment has two parts.

Part I - Modeling

You are building a database for an online streaming service. Given the database specification below, your job is to turn the specification into an ER diagram. You are using *dia* (see documentation for dia) to draw your ER diagram. You may also use other tools or apps such as draw.io. **Your notation must be consistent with the notation used in our lecture notes**. You can use all constructs and notations discussed in our lecture notes and nothing else (i.e., even notations used in the textbook but not in our lectures cannot be used).

You will be working in groups of 2-3; group members must be all registered in the course but they may not be all in the same lecture or lab section. Your ER diagram should capture all the information and constraints in the specification, but at the same time be minimal, meaning redundant entities, relationships, attributes and constraints should be avoided.

Database Specification

The database keeps information about both movies and customers.

Each movie has a title, a production year and a runtime in minutes. Different movies can have the same title but not the same title and year. There is a set of known genres, and each movie is assigned to one or more of those genres.

Each cast and crew member (referred to as movie person) has a unique id, and a name and a birth year. Cast members can take roles in movies (e.g. joker in the Batman movie), and those roles are maintained in the database. A cast member cannot take more than one role in the same movie.

For each crew member of a movie, the jobs of the crew member are maintained. A crew member can take multiple jobs in the same movie, and for each job a crew member takes, an order of importance is assigned.

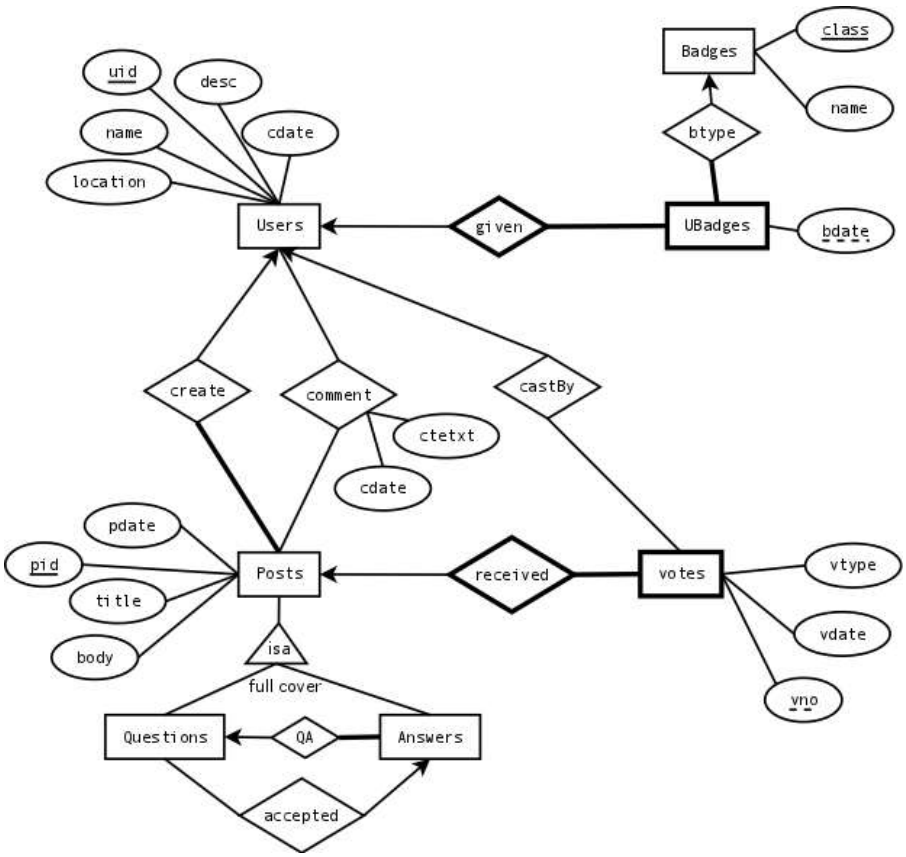
Each customer of the streaming service has a unique id, a name and an email. Each customer can have one favourite genre and can follow any number of movie persons. Customers can rate movies, by assigning a rating (a number between 1 and 5).

Each customer can have any number of streaming sessions; each session of a customer has a date (and time), a device that is used, and a duration (in minutes). In each session, the customer can watch some movies, and for each such movie, the duration watched (in minutes) is kept.

The streaming service keeps for each movie a set of other recommended movies. For each recommendation, a score (a number between 0 and 1) indicating the relevance or the likelihood that the customer will watch the recommended movie is kept.

Part II - Mapping

Map the following ER diagram into relational tables using the rules discussed in class. Give the complete CREATE TABLE commands for each necessary table including attribute names, their domains/types and all possible constraints. Use your common sense to choose a domain for each attribute.



(The dia file is also here)

Deliverables

Submit a single tar file for your group named *a1.tgz*. The submitted tar file is expected to have the following pieces:

1. A file named *CCID-P1.pdf* for every group member (replace CCID with the member CCID). This file is the PDF of the ER diagram prepared by the member for Part I. If the group includes, for example, three members, there should be three such files.
2. A file named *group-P1.pdf*. This file is the PDF of the ER diagram prepared by the group for Part I, possibly more comprehensive or accurate than the individually prepared diagrams. Only one group solution is submitted for this part.
3. A file named *group-P2.txt*. This file is a text file that has the group solution for Part II. The solution includes the relations (CREATE TABLE statements) obtained when mapping the given ER-model in Part II to the Relational model. Only one group solution is submitted for this part.
4. A file named *readme.txt*. This is a text file that lists the names and ccids of all group members. This file must also include the names of anyone you collaborated with (as much as it is allowed within the course policy) and a line saying that *you did not collaborate with anyone else*. A submission without this file or with missing information can lose 5% or more of the total mark. This is also the place to acknowledge the use of any source of information besides the course textbook and/or class notes.
5. A file named *comments.txt.* This is a text file that lists comments made by each member on the ER diagram of another group member. Clearly indicate the ccid of the member commenting and the ccid of the member whose ER diagram is being commented.
6. A file named group-P2-mapping.pdf clearly describing what is mapped to a table in Part 2. For example, you may have the ER for Part 2 and show in drawing how the elements are grouped to form a table as done in class.

The tar file can be created under Linux (lab machines) and MacOS using the command

tar -czf a1.tgz <all-the-files-to-be-included>

where <all-the-files-to-be-included> is replaced with the names of all files you are including in your submission.

Your ER diagrams should be produced with the diagraming tool such as dia or draw.io (here is a link to Windows and Mac versions of dia- use it at your own risk) and exported in PDF. You must use the same notation used in the course lectures. If you are making any assumptions in your modeling or mapping, state them clearly in your *readme.txt*; note that your assumptions cannot violate the specification given here and any possible clarification posted later on top of this page or the course forums.

Submission

Submit the tar file of your solution here. One group submission (made by any member) is sufficient, but all group members can submit and this may have the benefit that if one submission fails or is corrupt, another submission from the same group may be evaluated. If there are multiple submissions, we reserve the right to select one arbitrarily for marking. Also for group solutions in Parts I & II, only one group solution must be included in your submission. In cases where multiple solutions are included or a group solution is not submitted, we reserve the right to pick one solution from your submission and only mark that solution.

Other Details

Register your group here (if not done already). *There should be only one registration per group.*

Your mark for Part I is based on your group solution, your individual solution and your comments on the solution of another group member. At least 70% of the mark will be given to the group solution though.

Last modified: Thursday, 20 January 2022, 9:07 AM

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