Movies

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February 18, 2024

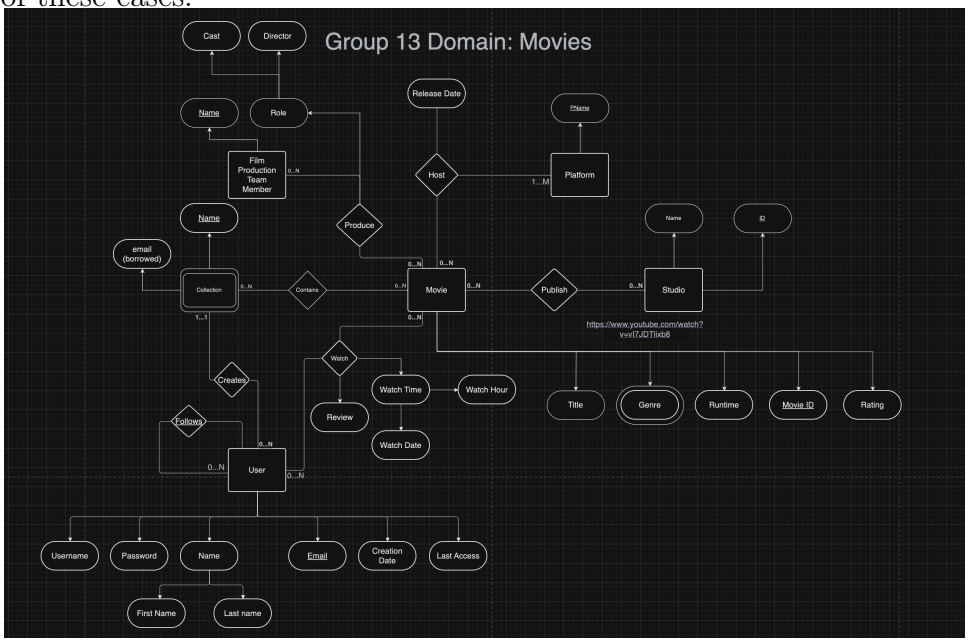
1 Introduction

The domain that we were assigned for this project was the Movies domain. This domain describes an application that allows for multiple users to interact with any number of movies in a couple of specific ways, as well as interact and view each other through following other users. Our approach to this project is broken down into a number of different stages. The first stage is to generate the conceptual model of the database. This means that we need to create a diagram, and define the relationships of different entities within the database. The next stage is to actually generate data and then load it into the database we designed in the previous step. The final stage will be to implement data analysis algorithms and run them on our database. As we continue through the project, at each stage we are likely to make revisions to our conceptual model. Throughout the stages, our living document will show these changes so that we can view our progress and assess ourselves at any point in the project.

2 Design

2.1 Conceptual Model

We tried to make our conceptual model reflect the many ways that movies get made. Some movies have multiple studios publishing them, some movies are independent. Some movies have a crew of thousands down to painters and caterers credited in production. Our EER diagram should account for all of these cases.



2.2 Reduction to tables

USER(UEmail, Username, Password, FirstName, LastName, CreationDate, LastAccess)
FOLLOWS($UEmail$, $FEmail$)
COLLECTION(CName, $UEmail$)
CONTAINS($MovieID$, $CName$, $UEmail$)

MOVIE(MID, Rating, Runtime, Title)
WATCH($UEmail$, MID, Review, WatchTime)
MOVIE_GENRE(MID, Genre)

STUDIO(SID, Name)
PUBLISH(SID, MID)

PLATFORM(PID, PName) HOST(MID, PID, ReleaseDate)

FILMPRODMEMBER($MName$)
PRODUCE($MName$, MID, Role)

Include in this section the reduction of your EER diagram to tables and explain how each entity type and relationship type have been converted. We first took each strong entity type and decomposed it into its primary key and its attributes. We first created a table with the same name including all the single-valued attributes. The key attributes in the EER diagram became the primary key in the table. We then created a table for each weak entity type, including the primary key of the strong entity type it is related to as a foreign key. We then created a table for each relationship type, including the primary keys of the participating entity types as foreign keys.

2.3 Data Requirements/Constraints

Use this section to list all the data domains and constraints that cannot be captured in your EER diagram but must be enforced by the database system. For example, there may be attribute types with a restricted domain, you must list those attribute types here and their domains. Similarly, attribute types with restrictions like uniqueness or required must be also listed here. USER:
- UEmail: str(50) UNIQUE NOT NULL
- Username: str(50) UNIQUE NOT NULL
- Password: str(250) NOT NULL
- FirstName: str(50) NOT NULL
- LastName: str(50) NOT NULL
- CreationDate: timestamp NOT NULL
- LastAccess: timestamp

COLLECTION:
- CName: str(50) UNIQUE NOT NULL

MOVIE:

- MID: int UNIQUE NOT NULL
- Rating: rating
- Runtime:
- Title: str(50) NOT NULL

2.4 Sample instance data

Use this section to include sample of entities for every entity type in your EER diagram. Include also sample of relationships for every relationship type. For example, assume you have an entity type *Course* in your EER diagram with the attribute types *ID* and *name*. A sample of a *Course* entity can be *CSCI320, Principles of Data Management*.

Include 5 samples for every entity type and relationship type.

Samples of the entity type *Movie* (title, genre, runtime, movie ID, MPAA rating) are as follows:

- *The Dark Knight*, Action, 2h 32m, MOVIE ID, PG-13
- *Dune*, Sci-Fi, 2h 48m, MOVIE ID, PG-13
- *Peppa Pig: My First Cinema Experience*, Adventure, 1h 13m, MOVIE ID, G
- *Prisoners*, Crime, 2h 33m, MOVIE ID, R
- *House*, Horror, 1h 28m, MOVIE ID, Not Rated

A sample of the entity type *Studio*, which contains a name and ID, would be *Warner Bros. Pictures*, STUDIO ID. An example of the platform entity type, which only contains an attribute type PName, would be *Max*.

3 Implementation

Use this section to describe the overall implementation of your database. Include samples of SQL statements to create the tables (DDL statements)

and a description of the ETL process, including examples of the SQL insert statements used to populate each table initially.

Include also sample of the SQL insert statements used in your application program to insert new data in the database. Finally, add an appendix of all the SQL statements created in your application during Phase 4 and a description of the indexes created to boost the performance of your application.

4 Data Analysis

4.1 Hypothesis

Use this section to state the objectives of your data analysis; what are the observations you are expecting to find. Note that your final observations may end up differing from your proposal, that is also a valid result.

4.2 Data Preprocessing

Use this section to describe the preprocessing steps you have performed to prepare the data for the analytics. Preprocessing steps may include: data cleaning (e.g., filling missing values, fixing outliers), formatting the data (e.g., resolving issues like inconsistent abbreviations, multiples date format in the data), combining or splitting fields, add new information (data enrichness).

Explain how the data was extracted from the database for the analysis; if you used complex queries or views, or both.

4.3 Data Analytics & Visualization

Use this section to explain the process/techniques used to analyze the data, use data visualization to present the results, and explain them.

4.4 Conclusions

Use this section to explain the conclusions drawn from your data analysis.

Table 1: Feelings about Issues

Flavor	Percentage	Comments
Issue 1	10%	Loved it a lot
Issue 2	20%	Disliked it immensely
Issue 3	30%	Didn't care one bit
Issue 4	40%	Duh?

5 Lessons Learned

Use this section to describe the issues you faced during the project and how you overcame them. Also, describe what you learned during this effort; this section, like the others, plays a critical component in determining your final grade.

The next subsection is meant to provide you with some help in dealing with figures, tables and references, as these are sometimes hard for folks new to LaTeX. Your figures and tables may be distributed all over your paper (not just here), as appropriate for your paper.

Please delete the following subsection before you make any submissions!

5.1 Tables, Figures, and Citations/References

Tables, figures, and references in technical documents need to be presented correctly. As many students are not familiar with using these objects, here is a quick guide extracted from the ACM style guide.

First, note that figures in the report must be original, that is, created by the student: please do not cut-and-paste figures from any other paper or report you have read or website. Second, if you do need to include figures, they should be handled as demonstrated here. State that Figure **??** is a simple illustration used in the ACM Style sample document. Never refer to the figure below (or above) because figures may be placed by LaTeX at any appropriate location that can change when you recompile your source *.tex* file. Incidentally, in proper technical writing (for reasons beyond the scope of this discussion), table captions are above the table and figure captions are below the figure. So the truly junk information about flavors is shown in

Table **??**.

Figure 1: A sample black & white graphic (JPG).

6 Resources

Include in this section the resources you have used in your project beyond the normal code development such as data sets or data analytic tools (i.e. Weka, R).