Georgia State University
CSC 4710 - Database Systems
Spring 2023

Project Design Report
Movies Database

Database Designers
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Section I : Introduction

Section I: Scheduling and Planning Table

Assignee Name	*Email*	*Task*	*Compliance*
Cindy Thai	mthai2@student.gsu.edu	Project Topic & Motivation	100%
Priyangka Roy	proy5@student.gsu.edu	Database Design	100%
Taibou Balde	tbalde3@student.gsu.edu	How database can be used (database utilization)	100%

This proposed movie database is designed with movie studios in mind to store information regarding movie ratings, movie cast, crew, and independent contractors which will aid movie executives in hiring movie studios for film making projects. Using the current system, a hiring manager for a film project must conduct individual casting calls, wasting a large amount of time on mostly amateur talent, or they must already have a network of filmmakers to assist them. This database will allow users to easily run queries on which studios are making the most successfully rated films and which cast, or crew were involved in those films to create better, more entertaining films.

The Movies Database Design will primarily focus on storing the details regarding a movie's production. Each entity will represent a different department that was part of the filmmaking process, such as the Visual Effects and the Set Design Department. These entities will contain information about the employees that worked in that specific department, such as their Name and Employee ID. And in order to distinguish each movie, the database will also contain information about the movie itself, such as its title, genre, and ratings.

This database will allow producing studios to plan the workforce for their movies accordingly. Once a general concept is decided upon, they can easily find who is capable of realizing the vision based on previous references. Similarly, if they find a person who they believe is a good fit, they can access some of their previous projects with minimal scourging. Additionally, they can get a general idea of these people's availability based on whether they are contracted or are able to work as free agents. Past use by movie studios and their employees, casual users and critics can also access very limited views. Critics, for example, can see upcoming movies and submit ratings for them. Other users

can query some detailed reports of the different pieces of moviemaking as well as review ratings for specific movies they want. They will be able to find movies by criteria such as a director that they like, certain actors, a certain range of ratings, or even a general genre. However, they won't have access to employee info or have any editing power.

Section II : Requirement Analysis

Section II: Scheduling and Planning Table

Assignee Name	*Email*	*Task*	*Compliance*
Cindy Thai	mthai2@student.gsu.edu	Functional Requirements	100%
Priyangka Roy	proy5@student.gsu.edu	Database Requirements	100%
Taibou Balde	tbalde3@student.gsu.edu	Integrity constraints	100%

Database Requirements

- **Entities + Relationship Types**: The Movies Database will be composed of at least 10 entities and 9 relationship types.
    - Entity Examples: Production Studio, Producer, Makeup/Costume, Visual Effects
    - Relationship Type Examples: A Director *directs* a Movie. A Critic *rates* a Movie.

- **Data Types**: Strings (combination of lower/uppercase), Integers, Floats, Date, Time
    - Strings: Movie Title/Genre, Employee Names, Department name, Location
    - Integers: Entity Primary Key
    - Float: Movie Rating
    - Date/Time: Dates for contracts, movie timestamps

- **Expectations**: The Database will allow users to create, store, and extract movie data. And the data output should be readable and relevant to the particular movie queried.

- **User Interface**: The primary UI for this database will be SQL Workbench. The user is able to input a combination of strings/integers in SQL and receive a response in less than 3 seconds.

Functional Requirements

1. **Data Authentication**: The system only allows authorized personnel such as database administrators to input updated data, alter information, or delete records from the movie database. The system allows users to provide results from queries to production studios for casting and hiring purposes.

2. **Data Storage and Retrieval**: The system stores movie data in a structured manner with integer and text data types, non-null values, and retrieves the data upon querying it with the correct syntax and proper language.

3. **Data Manipulation**: The system allows designated users to manipulate movie data such as inserting new movie releases with corresponding information, sorting movies by certain attributes, and searching for particular movies or cast and crew.

4. **Data Security**: The system protects and secures movie data from unauthorized access by enforcing specific applications that route traffic to only specified sources or denies access by default and restricts access through specific systems.

5. **Data Integrity**: The system ensures that data is accurate by denying data input for incorrect data types, consistent by allowing certain users to input data, and complete by ensuring data input is non-null. All changes in data must be logged in a changelog with dates and change types made available to users.

6. **Data Backup and Recovery**: The system allows patching early and often in the deployment stage in an effort to back up the data and recover it in the case of system failures and prevent security insecurities.

7. **Law Compliance**: Due to the nature of movies, NDA (non-disclosure agreements) must be signed when sharing information on original film concept, storyline, or screenplay; therefore, information stored on this database must be protected to authorized users and users must sign NDA or face legal consequences.

8. **Report and Analysis**: Movie release reports should be generated every week and analysis must be performed to provide insight to users on how new releases compare to previously stored data.

9. **Performance and Scalability**: The system copes well with increases in the number of movies or actors and continues working despite growing computational time. The system emphasizes proper data storage and processing to perform efficiently under load.

10. **Data Integration**: The system follows the standard ETL process to exchange movie data and facilitate data interoperability between data warehouses, systems, and business analysts.

Integrity Constraints

- **Specifying data types:** Regarding data types, all of the ID's are a unique combination of 6 integers. The movie dates, timestamps, and release year are all integers as well. All of the other attributes are strings.

- **Referential integrity:** Every director record must be related to a movie record. The database does not include a director until there has been at least a contract with terms of them directing the movie. Every critic must also be related to at least one movie, otherwise they are not to be included until that happens. Being part of the cast implies you are associated with a movie. Movies can have a null value for producing studio work if they are independently made by the director.

- **Key / Uniqueness constraints:** All of the ID values are unique across all of the records (*pID, prod_ID, mID, eID, oID, dID, cast_ID, aID, cos_ID, lead_ID).*

Section III : ER Model

Section III: Scheduling and Planning Table

Assignee Name	*Email*	*Task*	*Compliance*
Cindy Thai	mthai2@student.gsu.edu	Entities ER Design	100%
Priyangka Roy	proy5@student.gsu.edu	ER Attributes ER Design	100%
Taibou Balde	tbalde3@student.gsu.edu	Entities Relationships ER Design	100%

A. Entities

Strong Entities

-Producer, Editor, Camera Operator, Crew, Production Studio, Movie, Director, Staff, Cast, Makeup Artists, Costume Designers

Weak Entities

-Lead Cast

B. Attributes

Producer, Editor, Camera Operator, Director, Cast, Makeup Artist, Costume Designer, Lead Cast

- *Attributes: Name, (unique)ID,*

Crew

- *Attribute: C_DeptID*

Staff

- *Attribute: S_DeptID*

Production Studio

- *Attributes: Prod_Name, ProdID, Address, Phone#*

Movie

- *Attributes: MID, Release Year, Title, Genre, Rating, Timestamp*

Contract

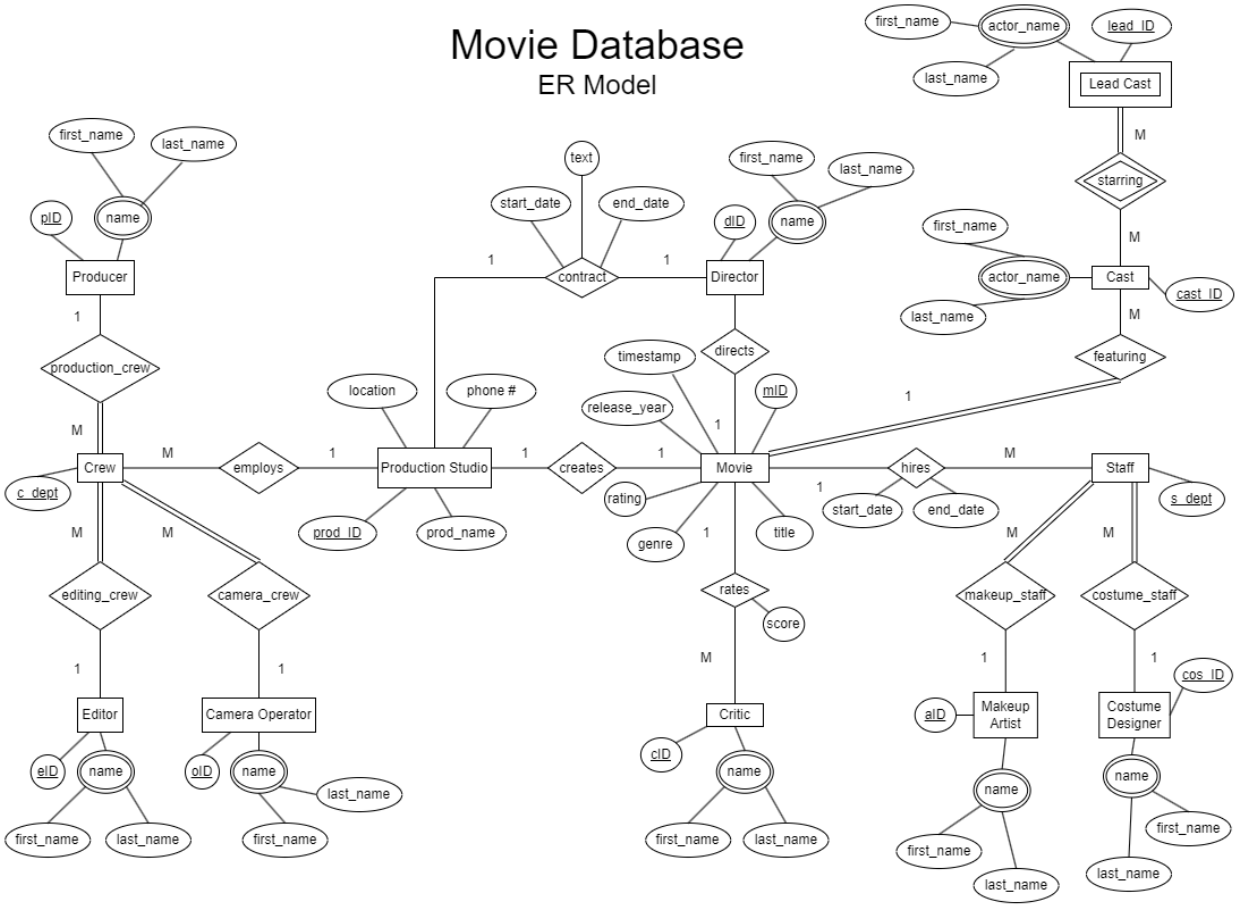
- *Attributes: Start Date, End Date, Text*

Hires

- *Attributes: Start Date, End Date*

C. Relationships

The production studio ***employs*** the production crew.
The production studio ***contracts*** the director.
The production crew ***creates*** the movie.
The director ***directs*** this movie.
The production studio ***creates*** a movie and ***employs*** the crew staff.
The cast staff ***work*** directly on the cast including the lead cast (makeup, costume, etc..)
The cast staff is ***hired*** for each movie as contracted agents.
The camera operators, editors, and production staff all ***work*** as part of the crew and each crew member will have a department.
The costume designers and makeup artists ***work*** as part of the casting staff as well.
The movie critic ***rates*** the movies.


Movie Database
ER Model
first_name
actor_name
lead_ID
last_name
Lead Cast
M
starring
M
first_name
actor_name
Cast
cast_ID
last_name
M
featuring
first_name
last_name
name
pID
Producer
1
production_crew
M
text
start_date
end_date
1
contract
1
first_name
last_name
dID
name
Director
directs
timestamp
mID
release_year
1
1
location
phone #
Crew
M
employs
1
Production Studio
1
creates
1
Movie
c_dept
prod_ID
prod_name
rating
genre
1
title
M
M
editing_crew
camera_crew
1
1
Editor
Camera Operator
eID
name
first_name
last_name
oID
name
last_name
first_name
rates
score
M
Critic
cID
name
first_name
last_name
hires
M
1
start_date
end_date
Staff
s_dept
M
M
makeup_staff
costume_staff
1
1
aID
Makeup Artist
name
first_name
last_name
cos_ID
Costume Designer
name
first_name
last_name