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HW#1 CS470
Database Management Systems; ER Model and Relational Schema

Entities

Corporate Contributor - (Corporate Name, Address, Corporate Phone#)

- We assume that only corporations donate to the theater. The corporate name is considered a unique attribute. The address and corporate phone number are also kept. Each corporation has a contact person, therefore their name is an attribute.

Contact Person - (Contact Person Name, Person Phone #) -Weak Entity to Corporate Contributor

- This entity's attributes hold the contact information for the person that represents the company. This is a weak entity because the Contact Person relies on the Corporate Contributor. The contact name is not a unique identifier on its own, it needs the corporate name as well to establish its identity. In theory, a contact person would not exist unless a corporation needs them.

Contribution - (Contribution ID, Amount, Transaction Date)

- Contribution keeps a record of the donation information. Every donation has a unique Contribution ID attribute. We will need to know which production got the donation, the company that did it, the amount of that donation, and the transaction date. It is assumed that one contribution means one free ticket for the company.

Play - (Play Name, Writer, Year Written, Estimated Duration)

- The play comes before the production is made. Play Name is a unique attribute because we assume Plays do not share the same names. We also assume that a play has one writer. There is also the year the play was created, and the estimated performance length.

Production - (Production Name, Director, Production Time, Production Date, Tickets Sold)

- The production entity holds attributes that are involved in what needs to be known for production. We assume that every production has a unique name, hence Production Name is a unique attribute. It is assumed that one director works on a production at a time as well as there can be one actor or many. We will keep track of tickets sold in production since multiple tickets can be sold for one production.

Actor - (Actor Name, Character Name/ List)

- Actors are those who perform in the production of the play. It is assumed that they can play one or many characters in one or multiple productions. The unique attributes are the Actor Name and Character Name/ List together since actors could have similar names.

Ticket - (TicketID, Price, Seat Location)

- Ticket is the entity that is sold or given to customers. For this exercise, we are focusing on the tickets made through contribution. It holds information on overall ticket prices and the location of seats

Relationships

Corporate Contributor/ Contact Person - **Has** - identifying relationship

- This is an identifying relationship because the Contact Person is a weak entity. One corporation can have one contact person and it goes visa versa.

Corporate Contributor/ Contribution - **Donates** - 1 to many

- The corporation can donate more than one contribution but a contribution can be made by one corporation at a time. Therefore it is a one-to-many relationship.

Play/ Production - **Has** - 1 to many

- This is a one-to-many relationship because a play can be interpreted in different ways by multiple productions. However, for this scenario, we assume a production is made based on one play.

Actor/ Production - **Perform** - many to many

- An actor can perform in multiple productions. This goes for productions, as well, one production can have multiple actors. Therefore it is a many-to-many relationship.

Contribution/ Ticket - **Gets** - 1 to 1

- When a corporation donates to the theater they are given a complimentary ticket. Therefore, one contribution equals one ticket.

Production/ Ticket - **Shows** - 1 to many

- There are multiple tickets sold for one production.

Tables

(Primary keys are underlined, foreign keys are highlighted)

`Corporate Contributor`(Corporate Name, Address, Corporate Phone #, Name_of_contact)

- This table holds the corporate information as well as a link to the contact person table.

`Contact Person`(Name_of_contact, Corporate Name, Contact Phone #)

- Since the contact person represents the corporation, the foreign key from the corporate is used as part of the primary key.

`Contribution` (Contribution ID, Corporate Name, Ticket ID, Production ID, amount, Transaction Date, Total)

- This table provides a central record keeping interacting with the Ticket and Corporate Contributor tables. It also keeps track of which production got the contribution.

`Play` (Play Name, Name_of_writter, Year, Duration)

- Play table stores information on itself, it does not require foreign keys.

`Production` (Production Name, Play Name, Name_of_director, Production_date_time, Tickets_sold)

- This table connects with the Play and Performance tables to get all the information needed for production. Since Production has a one-to-many relationship with Play, it has the foreign key and Play does not.

`Performance_Actors` (Production Name, Name_of_actor)

- Production_actors was created because Production and Actor have a many-to-many relationship. It holds the foreign keys, which are the primary keys for the two tables.

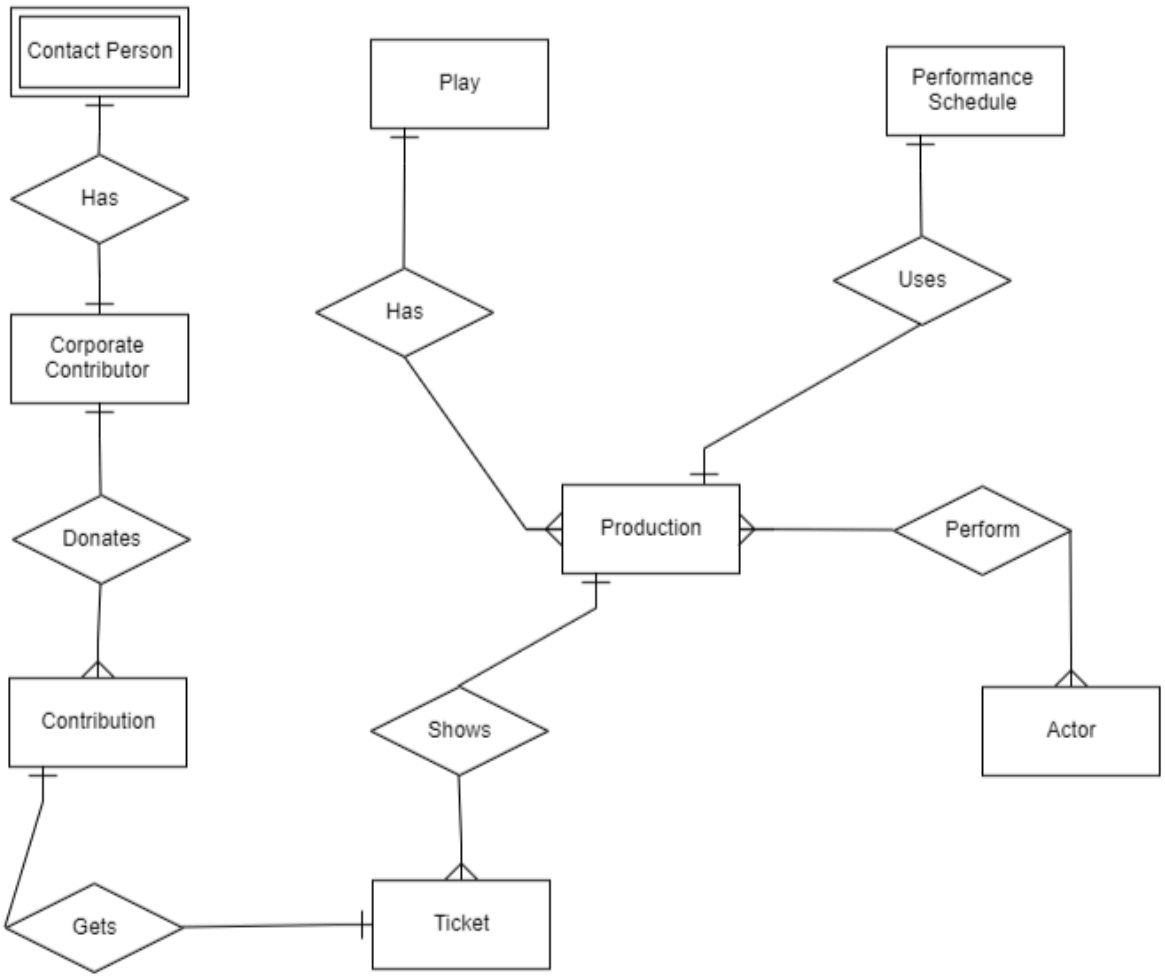
Actor(Name_of_actor, Name_of_character)

- The table stores the actors' names as well as the characters they play.

Ticket (Ticket ID, Production Name, Contribution ID, Performance ID, Sale_date, Seat)

- This table records data on the ticket, especially who the ticket goes to by using the foreign key Contribution ID.

E-R Diagram (Without attributes)



E-R Diagram (With attributes)