DBI Lab 003 - ER Diagrams and SQL Solutions

COMP1048 - Databases and Interfaces

Dr Matthew Pike & Prof Linlin Shen

Lab Overview

Today we will practice generating ER diagrams from a written problem description. You will then realise you ER diagram in SQLite using SQL.

Review the problem description below.

Problem Description

> A film house wants to create a database to store the details of its collections. Information to be stored about each movie includes their price, title, year and genre. Each movie will have a leading actor, and each leading actor may appear in several movies. Actors have names associated with them, and it should be possible to search the database with the actor's name.

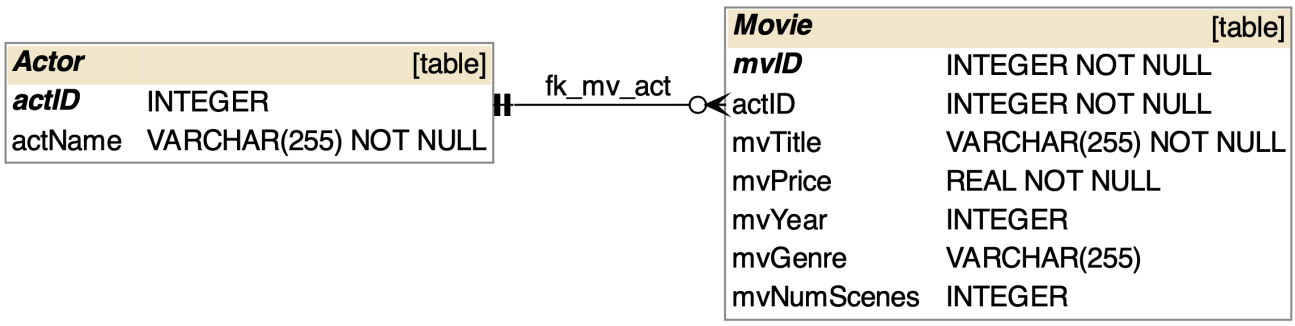
Exercise 1

1. Identify the entities, attributes, relationships and cardinality ratios from the problem description above.

    > - Actor
    >   - Name
    > - Movie
    >   - Actor (FK)
    >   - Title
    >   - Price
    >   - Year
    >   - Genre
    >   - Number of Scenes

2. Complete the E/R diagram with the additional information you have identified from the problem description.

> **Note** - A specific software or approach to develop your ER diagrams has not been specified. Find a free software tool you like or, alternatively, use pen and paper.



Exercise 2

1. Create tables to represent your whole database design. You should have a table for every entity, and a foreign key for every relationship.

> **Note** - You do not need to worry about referential integrity for this exercise.

```
DROP TABLE IF EXISTS Movie;
DROP TABLE IF EXISTS Actor;

CREATE TABLE Actor (
 actID INTEGER,
 actName VARCHAR(255) NOT NULL,
 CONSTRAINT pk_actor
     PRIMARY KEY (actID)
);

CREATE TABLE Movie (
 mvID INTEGER NOT NULL,
 actID INTEGER NOT NULL,
 mvTitle VARCHAR(255) NOT NULL,
 mvPrice REAL NOT NULL,
 mvYear INTEGER NULL,
 mvGenre VARCHAR(255) NULL,
 CONSTRAINT pk_mv
     PRIMARY KEY (mvID),
 CONSTRAINT fk_mv_act
     FOREIGN KEY (actID) REFERENCES Actor (actID)
);
```