

CS 450 - Database Systems

Fall 2021

Instructor: Dr. Jessica Lin

Homework 3 Part 2 – Due Oct 22 at 11:59pm

***** Note: This is an INDIVIDUAL assignment *****

Consider the following schemas for the online movie streaming company. Note this is a slightly simplified version from your last assignment.

Member(member_ID, first_name, last_name)

Profile(member_ID, profile_name)

Movie(movie_ID, title, movie_year, producer, avg_rating)

Actor(actor_ID, first_name, last_name)

Starred_By(movie_ID, actor_ID)

Watch(member_ID, profile_name, movie_ID, rating)

For each relation, the attribute(s) of the primary key is(are) underlined. In addition, the following foreign key constraints hold:

In *Profile*,

Foreign Key: member_ID references Member(member_ID)

In *Starred_By*,

Foreign Key: movie_ID references Movie(movie_ID)

Foreign Key: actor_ID references Actor(actor_ID)

In *Watch*,

Foreign Key: (member_ID, profile_name) references Profile(member_ID, profile_name)

Foreign Key: movie_ID references Movie(movie_ID)

Write the following queries in Relational Algebra. Note “dsmith” is a unique member_ID. Tips: Break a problem into smaller parts and use temporary relations.

1. Print the names of all actors in the movie titled “The Last Jedi.” Use join(s) for this question.

2. Find the members (member_ID, first name, last name) who watched the movie titled "The Last Jedi." Use join(s) for this question.
3. Find the members (member_ID) who has not watched any movie.
4. Find the members (member_ID) who watched ALL of the movies that Tom Hanks starred in.