Relational algebra exercises #1

DBM1

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Exercise 1

Consider the following database schema:

- Movie(<u>title</u>, <u>year</u>, length, filmType, studioName, <u>starName</u>)

Formulate the following queries in relational algebra.

1. The titles and the years of the movies made by Fox that are at least 100 minutes long.
2. The pairs of movies made in the same year and in which Judy Foster is a star.
3. The names of the stars that play in at least two movies.
4. The names of the stars that play in exactly one movie.

Exercise 2

Consider the following database schema:

- Visits(Drinker, Bar)
- Likes(Drinker, Beer)
- Serves(Bar, Beer)

and the following set of constraints:

- $\pi_{Drinker}(Visits) = \pi_{Drinker}(Likes)$
- $\pi_{Bar}(Serves) = \pi_{Bar}(Visits)$
- $\pi_{Beer}(Likes) = \pi_{Beer}(Serves)$

Formulate the following queries in relational algebra.

1. The drinkers that visit a bar that serves a beer that they like.
2. All the drinkers with the beers they do not like.
3. The drinkers that like all beers in all bars that they visit.
4. The pairs of beers that are not served in a common bar.
5. The pairs of beers that are served in two different bars.