

CS & DA



Database Management System

Query Languages

DPP 03 (Discussion Notes)



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[1 Mark]



#Q. Consider the following relational schema

actor (insta_id, name, language, age) Note: unique name of each actor.

movie (movie_id, title, year, director_id) Note: title is unique for each movie.

acts_in (insta_id, movie_id, character_name)

director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve details of all movies that were released in 2010.

The output schema should be the same as that of the movie table.

$$\{ t \mid t \in \text{movie} \wedge t.\text{year} = 2010 \}$$

[1 Mark]



#Q. Consider the following relational schema

actor (insta_id, name, language, age) Note: unique name of each actor.

movie (movie_id, title, year, director_id) Note: title is unique for each movie.

acts_in (insta_id, movie_id, character_name)

director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve details of all actors that are not in their thirties (i.e., $\text{age} < 30$ or $\text{age} > 39$). The output schema should be the same as that of the actor table.

$\{ t \mid t \in \text{actor} \wedge (t.\text{age} < 30 \vee t.\text{age} > 39) \}$

[1 Mark]



#Q. Consider the following relational schema
actor (insta_id, name, language, age) Note: unique name of each actor.
movie (movie_id, title, year, director_id) Note: title is unique for each movie.
acts_in (insta_id, movie_id, character_name)
director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the names of all directors.

$\{t.name \mid t \in \text{director}\}$

[1 Mark]



- #Q. Consider the following relational schema
- actor (insta_id, name, language, age) Note: unique name of each actor.
- movie (movie_id, title, year, director_id) Note: title is unique for each movie.
- acts_in (insta_id, movie_id, character_name)
- ✓director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the names of all “Telugu” language directors.

$\{ t.name \mid t \in \text{director} \wedge t.language = 'Telugu' \}$

[1 Mark]



#Q. Consider the following relational schema

- ✓ actor (insta_id, name, language, age) Note: unique name of each actor.
- ✓ movie (movie_id, title, year, director_id) Note: title is unique for each movie.
- ✓ acts_in (insta_id, movie_id, character_name)
- director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the name of each actor together with the titles of the movie he/she has performed in.

$$\{ t \mid \exists a \in \text{actor}, \exists m \in \text{movie}, \exists r \in \text{acts_in} (a.\text{insta_id} = r.\text{insta_id} \wedge r.\text{movie_id} = m.\text{movie_id} \wedge \underline{r.\text{name}} = a.\text{name} \wedge t.\text{title} = m.\text{title}) \}$$

[2 Marks]



#Q. Consider the following relational schema

✓ actor (insta_id, name, language, age) Note: unique name of each actor.

movie (movie_id, title, year, director_id) Note: title is unique for each movie.

✓ acts_in (insta_id, movie_id, character_name)

director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the names of all actors that have played the character of "Ravan".

$$\{ \underline{t.name} \mid t \in actor \wedge \exists n \in acts_in (t.insta_id = n.insta_id \wedge n.character_name = 'Ravan') \}$$

[2 Marks]



#Q. Consider the following relational schema

actor (insta_id, name, language, age) Note: unique name of each actor.

✓ movie (movie_id, title, year, director_id) Note: title is unique for each movie.

✓ acts_in (insta_id, movie_id, character_name)

director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the names of all actors that have played the character of "Ravan", together with the year the corresponding movies were released.

$$\{ t \mid \exists a \in \text{actor} \wedge \exists m \in \text{movie} \wedge \exists n \in \text{acts_in} (a.\text{insta_id} = n.\text{insta_id} \\ \wedge n.\text{movie_id} = m.\text{movie_id} \wedge n.\text{character_name} = \text{'Ravan'} \wedge \\ t.\text{name} = a.\text{name} \wedge t.\text{year} = m.\text{year}) \}$$

#Q. Consider the following relational schema

actor (insta_id, name, language, age) Note: unique name of each actor.

movie (movie_id, title, year, director_id) Note: title is unique for each movie.

acts_in (insta_id, movie_id, character_name)

director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve all actors that acted in movie with title "Bahubali". The output schema should be the same as that of the actor table.

$$\{t \mid t \in \text{actor} \wedge \exists m \in \text{movie} [\exists n \in \text{acts_in} (t.\text{insta_id} = n.\text{insta_id} \\ \wedge n.\text{movie_id} = m.\text{movie_id} \wedge m.\text{title} = \text{'Bahubali'})]\}$$

[2 Marks]



#Q. Consider the following relational schema

✓ actor (^{OOI}insta_id, name, language, age) Note: unique name of each actor.

✓ movie (^Mmovie_id, title, year, ^Ddirector_id) Note: title is unique for each movie.

✓ acts_in (^{OOI}insta_id, ^(M)movie_id, character_name)

✓ director (^Ddirector_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the names of all actors that have performed in a movie directed by "Anurag Kashyap".

$$\{ t.name \mid t \in actor \wedge \exists d \in director \wedge \exists m \in movie \wedge \exists r \in acts_in$$

$$(t.insta_id = r.insta_id \wedge m.movie_id = r.movie_id \wedge$$

$$m.director_id = d.director_id \wedge d.name = 'Anurag Kashyap') \}$$

[2 Marks]



#Q. Consider the following relational schema

$$\left. \begin{array}{l} t = x_1 \\ t = x_2 \end{array} \right\} x_1 = x_2$$

actor (insta_id, name, language, age) Note: unique name of each actor.

movie (movie_id, title, year, director_id) Note: title is unique for each movie.

acts_in (insta_id, movie_id, character_name)

director (director_id, name, language) Note: unique name of each director.

Write a TRC query to retrieve the titles of all movies in which Amitabh and Jaya have co-acted.

$$\{ t.title \mid t \in movie \wedge \exists a_1 \in actor \wedge \exists a_2 \in actor \wedge \exists x_1 \in acts_in$$

$$\wedge \exists x_2 \in acts_in (a_1.insta_id = x_1.insta_id \wedge a_1.name = 'Amitabh'$$

$$\wedge a_2.insta_id = x_2.insta_id \wedge a_2.name = 'Jaya' \wedge$$

$$t.movie_id = x_1.movie_id \wedge t.movie_id = x_2.movie_id) \}$$



THANK - YOU