Coding Practice - 04

this practice set, let's get the hold of SQL Joins operations using the following database.

Database:
The database given is similar to IMDb, which consists data related to various movies, directors and actors.

The database is designed to cover the below business requirements.
- A movie can have more than one actor casted and vice versa.
- A movie can have more than one director and vice versa.

Note

You can assume that actors in the database have acted in at least one movie (in the database), where as some directors might not have the movies they directed(in the given database). So, do take care of this detail while writing various queries on the database, especially, when deciding on INNER JOIN / LEFT JOIN.

Junction Tables

movie_cast is a junction table which stores the many-to-many relationship between movie and actor . And role of an actor for a movie is stored in the table. Similarly movie_director table stores the many-to-many relationship between movie and director

Refer the tables in the code playground for a better understanding of the database.

QUESTIONS

1. For all the movies, get the actor_ids of the cast.

Note:

- Sort the output in the ascending order of movie_name, and then in the ascending order of the actor_id.

Expected Output Format

movie_name	actor_id
...	...

SHOW ANSWER

SELECT movie.name AS movie_name, movie_cast.actor_id AS actor_id FROM movie INNER JOIN movie_cast ON movie.id = movie_cast.movie_id ORDER BY movie_name ASC, actor_id ASC;

2. Get the number of movies in which "Daniel Radcliffe" has acted.

Expected Output Format

no_of_movies.

...

SELECT count(movie.name) AS no_of_movies FROM movie INNER JOIN movie_cast ON movie.id = movie_cast.movie_id INNER JOIN actor ON actor.id = movie_cast.actor_id WHERE actor.name = 'Daniel Radcliffe';

3. For each actor, get the number of movies in which they are casted.

Note:

- Sort the output in the ascending order of the actor_name .

Expected Output Format

actor_name no_of_movies
... ...

SELECT actor.name AS actor_name, count(movie_cast.movie_id) AS no_of_movies FROM actor INNER JOIN movie_cast ON actor.id = movie_cast.actor_id GROUP BY actor_id ORDER BY actor_name ASC;

4. Get the actors who acted in at least 5 movies.

Note:

Sort the output in the ascending order of the actor_name .

Expected Output Format

actor_name no_of_movies
... ...

SELECT actor.name AS actor_name, count(movie.name) AS no_of_movies FROM movie_cast LEFT JOIN movie ON movie.id = movie_cast.movie_id LEFT JOIN actor ON actor.id = movie_cast.actor_id GROUP BY actor_name HAVING no_of_movies >= 5 ORDER BY actor_name ASC;

5. For each director in the database, get the number of movies they have directed.

Note:

- If a director did not direct any movie (in the database), consider the count as 0.
- Sort the output in descending order of no_of_movies , and then in the ascending order of director_name .

Expected Output Format

director_name	no_of_movies
...	...

SELECT director.name AS director_name, count(movie_director.movie_id) AS no_of_movies FROM director LEFT JOIN movie_director ON director.id = movie_director.director_id GROUP BY director_name ORDER BY no_of_movies DESC, director_name ASC;

6. Get all the ids of directors who directed at least two movies, with rating greater than 6

Sort the output in descending order of

no_of_movies , and then in the ascending order of director_id

Expected Output Format

director_id	no_of_movies
...	...

SELECT director.id AS director_id, count(movie_director.movie_id) AS no_of_movies FROM movie_director INNER JOIN director ON director.id = movie_director.director_id INNER JOIN movie ON movie.id = movie_director.movie_id WHERE rating > 6 GROUP BY director_id HAVING no_of_movies >= 2 ORDER BY no_of_movies DESC, director_id ASC;

7. Get all the director ids who directed at least two movies that have a profit at least 50 crores.

Note:

- Profit is the difference between collection and budget of movies
- Sort the output in the descending order of no_of_movies_with_atleast_profit_50_cr and then in the ascending order of director_id .

Expected Output Format

director_id	no_of_movies_with_atleast_profit_50_cr
...	...

SELECT director.id AS director_id, count(movie_director.movie_id) AS no_of_movies_with_atleast_profit_50_cr FROM movie_director INNER JOIN director ON director.id = movie_director.director_id INNER JOIN movie ON movie.id = movie_director.movie_id WHERE collection_in_cr - budget_in_cr >= 50 GROUP BY director_id HAVING no_of_movies_with_atleast_profit_50_cr >= 2 ORDER BY no_of_movies_with_atleast_profit_50_cr DESC, director_id ASC;

8. Get all the director_ids who directed at least two movies and have an average profit greater than 50 crores.

Note:

- Profit is the difference between collection and budget of movies
- Sort the output in the descending order of no_of_movies and then in the ascending order of director_id .

Expected Output Format

director_id	no_of_movies	avg_profit
...	...	...

SELECT director.id AS director_id, count(movie_director.movie_id) AS no_of_movies, avg(collection_in_cr - budget_in_cr) AS avg_profit FROM movie_director INNER JOIN director ON director.id = movie_director.director_id INNER JOIN movie ON movie.id = movie_director.movie_id GROUP BY director_id HAVING no_of_movies >= 2 AND avg_profit > 50 ORDER BY no_of_movies DESC, director_id ASC;

9. Fetch the directors who directed at least two movies, and has an average rating (for all his/her movies) greater than 8

Note

- Sort the output in descending order of no_of_movies , and then in the ascending order of director_id

Expected Output Format

director_id	no_of_movies	avg_rating
...	...	...

SELECT director.id AS director_id, count(movie_director.movie_id) AS no_of_movies, avg(movie.rating) AS avg_rating FROM director LEFT JOIN movie_director ON director.id = movie_director.director_id LEFT JOIN movie ON movie.id = movie_director.movie_id GROUP BY director_id HAVING no_of_movies >= 2 AND avg_rating > 8 ORDER BY no_of_movies DESC, director_id ASC;

10. Get all the distinct actors who casted in any of the Harry Potter movies.

Note:

- Consider the movie names that contain "Harry Potter ".
- Sort the output in the ascending order of the actor_name .

Expected Output Format

actor_name
...

SELECT DISTINCT actor.name AS actor_name FROM actor LEFT JOIN movie_cast ON actor.id = movie_cast.actor_id LEFT JOIN movie ON movie.id = movie_cast.movie_id WHERE movie.name LIKE '%Harry Potter%' ORDER BY actor_name ASC;

11. Get all the distinct directors who directed any of the Harry Potter movies.

Note:

- Consider the movie names that contain "Harry Potter ".
- Sort the output in the ascending order of the director_name .

director_name

...

SELECT DISTINCT director.name AS director_name FROM director LEFT JOIN movie_director ON director.id = movie_director.director_id LEFT JOIN movie ON movie.id = movie_director.movie_id WHERE movie.name LIKE '%Harry Potter%' ORDER BY director_name ASC;

Director Table

id	name	gender
1	Joe Johnston	M
2	Joss Whedon	M

Movie Table

id	name	year	rating	budget_in_cr	collection_in_cr
1	Fantastic 4: Rise of the Silver Surfer	2007	5.6	73	276
2	Captain America: The First Avenger	2011	6.9	64	432
3	Captain America: The Winter Soldier	2014	7.7	94	228

Movie_Cast Table

id	actor_id	movie_id	role
1	1	2	Male Lead
2	2	2	Female Lead

id	actor_id	movie_id	role
3	1	3	Male Lead
4	8	5	Female Lead
5	9	5	Male Lead

Movie_Director Table

id	director_id	movie_id
1	1	2
2	3	3
3	4	3
4	3	4
5	4	4

Actor Table

id	name	gender	phone_no	address
1	Chris Evans	M	14166253913	Canada
2	Hayley Atwell	F	14166253914	Alaska
3	Scarlett Johansson	F	14166253915	California
4	Ioan Gruffudd	M	14166253916	Colorado