

# DB Assignment 4

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**Date: 10/30/2024**

## SQL Section

### Problem 1: Average Length of Films in Each Category

```
-- *****
-- Average length of films in each category, ordered alphabetically
-- *****

SELECT    c.name AS "Category Name",
          ROUND(AVG(f.length), 2) AS "Average Length"
FROM      film f
JOIN      film_category fc ON f.film_id = fc.film_id
JOIN      category c ON fc.category_id = c.category_id
GROUP BY c.name
ORDER BY c.name;
```

#### Explanation:

This query calculates the average length of films for each category by joining the film, film\_category, and category tables. The results are displayed alphabetically by category name.

#### Result

	Category Name	Average Length	
	Action	111.61	
	Animation	111.02	
	Children	109.80	
	Classics	111.67	
	Comedy	115.83	
	Documentary	108.75	
	Drama	120.84	
	Family	114.78	
	Foreign	121.70	
	Games	127.84	
	Horror	112.48	
	Music	113.65	
	New	111.13	
	Sci-Fi	108.20	
	Sports	128.20	
	Travel	113.32	

## Problem 2: Category with Longest and Shortest Average Film Length

```
-- *****
-- Category with the longest average film length
-- *****

SELECT  c.name AS "Category Name",
        ROUND(AVG(f.length), 2) AS "Average Length"
FROM    film f
JOIN    film_category fc ON f.film_id = fc.film_id
JOIN    category c ON fc.category_id = c.category_id
GROUP BY c.name
ORDER BY "Average Length" DESC
LIMIT   1;

-- *****
-- Category with the shortest average film length
-- *****

SELECT  c.name AS "Category Name",
        ROUND(AVG(f.length), 2) AS "Average Length"
FROM    film f
JOIN    film_category fc ON f.film_id = fc.film_id
JOIN    category c ON fc.category_id = c.category_id
GROUP BY c.name
ORDER BY "Average Length" ASC
LIMIT   1;
```

### Explanation:

This query retrieves the category with the longest or shortest average film length by calculating and ordering the average film length for each category.

### Result

Category Name		Average_Length
Sports		128.20

Category Name		Average_Length
Sci-Fi		108.20

### Problem 3: Customers Who Rented Action but Not Comedy or Classics

```
-- *****
-- Customers who rented action but not comedy or classic movies
-- *****

SELECT DISTINCT cu.first_name AS "First Name",
                 cu.last_name AS "Last Name"
FROM   customer cu
JOIN   rental r ON cu.customer_id = r.customer_id
JOIN   inventory i ON r.inventory_id = i.inventory_id
JOIN   film_category fc ON i.film_id = fc.film_id
JOIN   category c ON fc.category_id = c.category_id
WHERE  c.name = 'Action'
AND    cu.customer_id NOT IN (
    SELECT cu2.customer_id
    FROM   customer cu2
    JOIN   rental r2 ON cu2.customer_id = r2.customer_id
    JOIN   inventory i2 ON r2.inventory_id = i2.inventory_id
    JOIN   film_category fc2 ON i2.film_id = fc2.film_id
    JOIN   category c2 ON fc2.category_id = c2.category_id
    WHERE  c2.name IN ('Comedy', 'Classics')
);
```

#### Explanation:

This query retrieves customers who have rented films from the 'Action' category but not from 'Comedy' or 'Classics' by using a subquery.

#### Result

	First Name	Last Name	
	LAWRENCE	LAWTON	
	MATTHEW	MAHAN	
	TOM	MILNER	
	JO	FOWLER	
	SCOTT	SHELLEY	
	EDWIN	BURK	
	JOANN	GARDNER	
	DONNA	THOMPSON	
	DON	BONE	
	JUAN	FRALEY	
	DOLORES	WAGNER	
	MICHEAL	FORMAN	
	AMBER	DIXON	
	MELINDA	FERNANDEZ	
	CONSTAN...	REID	
	RUBY	WASHING...	
	GINA	WILLIAMS...	

#### Problem 4: Actor with Most Appearances in English-Language Movies

```
SELECT  a.first_name AS "First Name",
        a.last_name AS "Last Name",
        COUNT(f.film_id) AS "Number of English Movies"
FROM    actor a
JOIN    film_actor fa ON a.actor_id = fa.actor_id
JOIN    film f ON fa.film_id = f.film_id
JOIN    language l ON f.language_id = l.language_id
WHERE   l.name = 'English'
GROUP BY a.actor_id
ORDER BY "Number of English Movies" DESC
LIMIT  1;
```

#### Explanation:

This query identifies the actor who has appeared in the most English-language movies by joining the actor, film\_actor, film, and language tables.

#### Result

	First Name	Last Name	Number of English Movi...	
	PENELOPE	GUINESS	19	

### Problem 5: Number of Distinct Movies Rented for Exactly 10 Days from Mike's Store

```
-- *****  
-- Number of distinct movies rented for exactly 10 days  
-- from the store where Mike works  
-- *****  
  
SELECT COUNT(DISTINCT r.inventory_id) AS "Number of Movies"  
FROM   rental r  
JOIN   staff s ON r.staff_id = s.staff_id  
JOIN   store st ON s.store_id = st.store_id  
WHERE  DATEDIFF(r.return_date, r.rental_date) = 10  
       AND s.first_name = 'Mike';
```

#### Explanation:

This query calculates the number of distinct movies rented for exactly 10 days from the store where staff member 'Mike' works.

#### Result

	Number of Movi...	
	48	

## Problem 6: Alphabetical List of Actors in Movie with Largest Cast

```
-- *****
-- Alphabetically list actors who appeared in the movie
-- with the largest cast of actors
-- *****

SELECT  a.first_name AS "First Name",
        a.last_name AS "Last Name"
FROM    actor a
JOIN    film_actor fa ON a.actor_id = fa.actor_id
WHERE   fa.film_id = (
        SELECT fa2.film_id
        FROM    film_actor fa2
        GROUP BY fa2.film_id
        ORDER BY COUNT(fa2.actor_id) DESC
        LIMIT 1
        )
ORDER BY a.last_name, a.first_name;
```

### Explanation:

This query lists all actors in alphabetical order who appeared in the movie with the largest cast by counting actors per movie and ordering by the largest count.

### Result

	First Name	Last Name	
	JULIA	BARRYMORE	
	VAL	BOLGER	
	SCARLETT	DAMON	
	LUCILLE	DEE	
	WOODY	HOFFMAN	
	MENA	HOPPER	
	REESE	KILMER	
	CHRISTIAN	NEESON	
	JAYNE	NOLTE	
	BURT	POSEY	
	MENA	TEMPLE	
	WALTER	TORN	
	FAY	WINSLET	
	CAMERON	ZELLWEGER	
	JULIA	ZELLWEGER	

## ERD Diagram:

