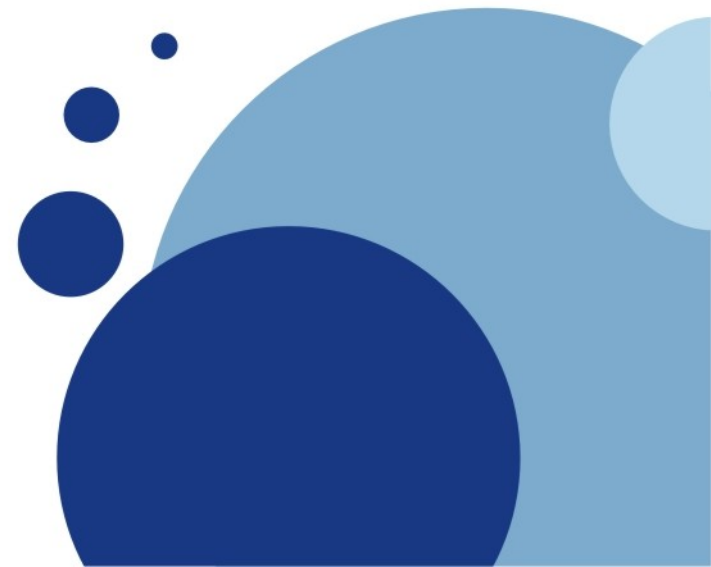


# SQL Analytics I

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# MIN, MAX, AVG, SUM, COUNT

- Query: *Minimum length of films*

```
SELECT MIN(length)
FROM film;
```

min
-----
46

- Query: *Minimum, Maximum and Average length of films*

```
SELECT MIN(length), MAX(length), AVG(length)
FROM film;
```

min	max		avg	
-----	+	-----	+	-----
46		185		115.27200000000000000000

- Query: *total revenue*

```
SELECT SUM(amount)
FROM payment;
```

sum
-----
61312.04

- Query: *Number of films*

```
SELECT COUNT(*)
FROM film;
```

count
-----
1000

# DISTINCT

- Query: *what are the different ratings of films*

```
SELECT DISTINCT rating
FROM film;
```

```
dvdrental=#
dvdrental=# select distinct rating from film;
rating
-----
G
PG-13
R
PG
NC-17
(5 rows)

dvdrental=#
```



Pingu OS

# AGGREGATE Functions

- Aggregate functions are functions that take a collection (a set or multiset) of values as input and return a single value. SQL offers built-in aggregate functions: *min*, *max*, *sum*, *count*, and *avg*.
- Aggregation with filtering

Q1: *Number of films with length between 60 and 90 min*

```
SELECT COUNT(*) AS nbr_films  
FROM film  
WHERE length BETWEEN 60 AND 90;
```

nbr_films
-----
229

Q2: *Stat rental duration for films with 'G' rating*

```
SELECT MIN(rental_duration), MAX(rental_duration),  
       AVG(rental_duration)  
FROM film  
WHERE rating = 'G';
```

min	max	avg
3	7	4.8370786516853933
(1 row)		

# AGG Functions with restrictions

Q3: *Number of film rentals by customer "Jennifer Davis"*

```
SELECT COUNT(*) AS nbr_rentals
FROM rental r, customer c
WHERE c.first_name = 'Jennifer'
AND c.last_name = 'Davis'
AND r.customer_id = c.customer_id;
```

```
dvdrental=#
dvdrental=#
dvdrental=# SELECT COUNT(*) AS nbr_rentals
dvdrental-# FROM rental r, customer c
dvdrental-# WHERE c.first_name = 'Jennifer'
dvdrental-# AND c.last_name = 'Davis'
dvdrental-# AND r.customer_id = c.customer_id;
  nbr_rentals
-----
              28
(1 row)

dvdrental=#
```

# AGG Functions with Grouping

- GROUP BY col1, col2, ...coln

Q4: *Number of rentals for each film*

```
SELECT f.film_id, f.title, COUNT(*) AS nbr_rentals
```

```
FROM film f, inventory i, rental r
```

```
WHERE f.film_id = i.film_id AND i.inventory_id = r.inventory_id
```

```
GROUP BY f.film_id, f.title;
```

film_id	title	nbr_rentals
652	Pajama Jawbreaker	14
273	Effect Gladiator	25
51	Balloon Homeward	23
951	Voyage Legally	28
70	Bikini Borrowers	17
839	Stallion Sundance	7
350	Garden Island	20
758	Saints Bride	8
539	Luck Opus	10
278	Elf Murder	7
946	Virtual Spoilers	14
176	Congeniality Quest	22
576	Mighty Luck	12
292	Excitement Eve	21

# AGG Functions with Grouping

Q4: *Number of films per rating*

```
SELECT rating, COUNT(*) AS nbr_of_films  
FROM film  
GROUP BY rating;
```

```
dvdrental=# SELECT rating, COUNT(*) AS nbr_of_films  
dvdrental=# FROM film  
dvdrental=# GROUP BY rating;  
 rating | nbr_of_films  
-----+-----  
 G      |          178  
 PG-13  |          223  
 R      |          195  
 PG     |          194  
 NC-17  |          210  
(5 rows)
```

# SORT resultset

- ORDER BY col1 ASC|DESC, . . . . , coln ASC|DESC ...

Q4: *Number of films per rating, sort resultset using descending order by counted films*

```
SELECT rating, COUNT(*) AS nbr_of_films  
FROM film  
GROUP BY rating  
ORDER BY nbr_of_films DESC;
```

```
dvdrental=# SELECT rating, COUNT(*) AS nbr_of_films  
dvdrental=# FROM film  
dvdrental=# GROUP BY rating  
dvdrental=# ORDER BY nbr_of_films DESC;  
 rating | nbr_of_films  
-----+-----  
 PG-13  |          223  
 NC-17  |          210  
  R     |          195  
  PG    |          194  
  G     |          178
```



# AGG Functions with Grouping

Query: *Number of films per category*

```
SELECT c.name AS category, COUNT(*)  
FROM film f, film_category fc, category c  
WHERE f.film_id = fc.film_id  
AND fc.category_id = c.category_id  
GROUP BY category;
```

category	count
Family	69
Games	61
Animation	66
Classics	57
Documentary	68
New	63
Sports	74
Children	60
Music	51
Travel	57
Foreign	73
Drama	62
Horror	56
Action	64
Sci-Fi	61
Comedy	58
(16 rows)	

# Restrictions after Grouping

Query: *Show categories which include over 60 movies*

```
SELECT c.name AS category, COUNT(*)  
FROM film f, film_category fc, category c  
WHERE f.film_id = fc.film_id  
AND fc.category_id = c.category_id  
GROUP BY category  
HAVING COUNT(*) > 60;
```

category	count
Family	69
Games	61
Animation	66
Documentary	68
New	63
Sports	74
Foreign	73
Drama	62
Action	64
Sci-Fi	61
(10 rows)	

# ORDER BY

Query: *Sort films which have a length > 170 minutes, along rating ASC and length DESC*

SELECT rating, length, title

FROM film

WHERE length > 184

ORDER BY rating ASC, length DESC;

```
dvdrental=#
dvdrental=# SELECT rating, length, title
dvdrental=# FROM film
dvdrental=# WHERE length > 184
dvdrental=# ORDER BY rating ASC, length DESC;
 rating | length | title
-----+-----+-----
G       | 185    | Muscle Bright
G       | 185    | Control Anthem
G       | 185    | Darn Forrester
PG      | 185    | Worst Banger
PG-13   | 185    | Gangs Pride
PG-13   | 185    | Pond Seattle
PG-13   | 185    | Chicago North
R       | 185    | Home Pity
R       | 185    | Soldiers Evolution
R       | 185    | Sweet Brotherhood
(10 rows)
```