

MySQL - Aggregation + Group BY Challenge - Lecture 15

Challenge Time

1. COUNT how many books each author has written

```
mysql> SELECT Concat(author_fname , " ", author_lname) AS FullName,
-> Count(title) AS 'Books Written' FROM Books
-> GROUP BY FullName ORDER BY 'Books Written' DESC;
+-----+-----+
| FullName | Books Written |
+-----+-----+
| Neil Gaiman | 3 |
| Dave Eggers | 3 |
| Jhumpa Lahiri | 2 |
| Raymond Carver | 2 |
| David Foster Wallace | 2 |
| Michael Chabon | 1 |
| Patti Smith | 1 |
| Don DeLillo | 1 |
| John Steinbeck | 1 |
| Dan Harris | 1 |
| Freida Harris | 1 |
| George Saunders | 1 |
+-----+-----+
12 rows in set (0.00 sec)
```

MIN AND MAX

```
mysql> SELECT MIN(Pages) FROM Books;
+-----+
| MIN(Pages) |
+-----+
| 176 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT MAX(Pages) FROM Books;
+-----+
| MAX(Pages) |
+-----+
| 634 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT Concat(author_fname , " ", author_lname) AS FullName,
-> MAX(Pages) FROM Books GROUP By 1;
+-----+-----+
| FullName | MAX(Pages) |
+-----+-----+
| Jhumpa Lahiri | 291 |
| Neil Gaiman | 465 |
| Dave Eggers | 504 |
| Michael Chabon | 634 |
| Patti Smith | 304 |
| Raymond Carver | 526 |
| Don DeLillo | 320 |
| John Steinbeck | 181 |
| David Foster Wallace | 343 |
| Dan Harris | 256 |
| Freida Harris | 428 |
| George Saunders | 367 |
+-----+-----+
12 rows in set (0.00 sec)
```

```

mysql> SELECT Concat(author_fname , " ", author_lname) AS FullName,
-> MIN(Pages) FROM Books GROUP By 1;
+-----+-----+
| FullName | MIN(Pages) |
+-----+-----+
| Jhumpa Lahiri | 198 |
| Neil Gaiman | 208 |
| Dave Eggers | 352 |
| Michael Chabon | 634 |
| Patti Smith | 304 |
| Raymond Carver | 176 |
| Don DeLillo | 320 |
| John Steinbeck | 181 |
| David Foster Wallace | 329 |
| Dan Harris | 256 |
| Freida Harris | 428 |
| George Saunders | 367 |
+-----+-----+
12 rows in set (0.00 sec)

```

```

mysql> SELECT Concat(author_fname , " ", author_lname) AS FullName,
-> MIN(Pages) , COUNT(*) FROM Books GROUP By 1;
+-----+-----+-----+
| FullName | MIN(Pages) | COUNT(*) |
+-----+-----+-----+
| Jhumpa Lahiri | 198 | 2 |
| Neil Gaiman | 208 | 3 |
| Dave Eggers | 352 | 3 |
| Michael Chabon | 634 | 1 |
| Patti Smith | 304 | 1 |
| Raymond Carver | 176 | 2 |
| Don DeLillo | 320 | 1 |
| John Steinbeck | 181 | 1 |
| David Foster Wallace | 329 | 2 |
| Dan Harris | 256 | 1 |
| Freida Harris | 428 | 1 |
| George Saunders | 367 | 1 |
+-----+-----+-----+
12 rows in set (0.00 sec)

```

Subqueries:

```

mysql> SELECT MIN(pages) FROM Books;
+-----+
| MIN(pages) |
+-----+
| 176 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT * FROM Books WHERE pages = 176;
+-----+-----+-----+-----+-----+-----+
| book_id | title | author_fname | author_lname | released_year | stock_quantity | pages |
+-----+-----+-----+-----+-----+-----+
| 11 | What We Talk About When We Talk About Love: Stories | Raymond | Carver | 1981 | 23 | 176 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> SELECT * FROM Books WHERE pages = (SELECT Min(pages) FROM Books);
+-----+-----+-----+-----+-----+-----+
| book_id | title | author_fname | author_lname | released_year | stock_quantity | pages |
+-----+-----+-----+-----+-----+-----+
| 11 | What We Talk About When We Talk About Love: Stories | Raymond | Carver | 1981 | 23 | 176 |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

```

Another Way of finding the Min & Max Values - Using Order BY

```
mysql> SELECT * FROM Books ORDER BY Pages LIMIT 1; | Min
+-----+-----+-----+-----+-----+
| book_id | title | author_fname | author_lname | released_year | stock_quantity | pages |
+-----+-----+-----+-----+-----+
| 11 | What We Talk About When We Talk About Love: Stories | Raymond | Carver | 1981 | 23 | 176 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> SELECT * FROM Books ORDER BY Pages DESC LIMIT 1; | Max
+-----+-----+-----+-----+-----+
| book_id | title | author_fname | author_lname | released_year | stock_quantity | pages |
+-----+-----+-----+-----+-----+
| 7 | The Amazing Adventures of Kavalier & Clay | Michael | Chabon | 2000 | 68 | 634 |
+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

Challenge 2

Find the year each author published their first book

Note:

earliest Books/ First Book - MIN(Released_year)

Latest Books/ Last Book - MAX(Released_year)

```
mysql> SELECT Concat(author_fname , " ", author_lname) AS FullName,
-> MIN(released_year) AS FirstBook FROM Books GROUP BY 1 ORDER BY 2;
+-----+-----+
| FullName | FirstBook |
+-----+-----+
| John Steinbeck | 1945 |
| Raymond Carver | 1981 |
| Don DeLillo | 1985 |
| Jhumpa Lahiri | 1996 |
| Michael Chabon | 2000 |
| Neil Gaiman | 2001 |
| Dave Eggers | 2001 |
| Freida Harris | 2001 |
| David Foster Wallace | 2004 |
| Patti Smith | 2010 |
| Dan Harris | 2014 |
| George Saunders | 2017 |
+-----+-----+
12 rows in set (0.00 sec)
```

```

mysql> SELECT author_fname,
->         author_lname,
->         Min(released_year)
-> FROM   books
-> GROUP  BY 2,1;
+-----+-----+-----+
| author_fname | author_lname | Min(released_year) |
+-----+-----+-----+
| Jhumpa      | Lahiri       | 1996          |
| Neil        | Gaiman       | 2001          |
| Dave        | Eggers       | 2001          |
| Michael     | Chabon       | 2000          |
| Patti       | Smith        | 2010          |
| Raymond     | Carver       | 1981          |
| Don         | DeLillo       | 1985          |
| John        | Steinbeck    | 1945          |
| David       | Foster Wallace| 2004          |
| Dan         | Harris        | 2014          |
| Freida     | Harris        | 2001          |
| George      | Saunders     | 2017          |
+-----+-----+-----+
12 rows in set (0.00 sec)

```

Challenge 3

Find the longest page count for each author

```

mysql> SELECT Concat(author_fname , " ", author_lname) AS FullName,
-> MAX(pages) AS Pages FROM Books GROUP BY 1 ORDER BY 2 DESC;
+-----+-----+
| FullName        | Pages |
+-----+-----+
| Michael Chabon | 634   |
| Raymond Carver | 526   |
| Dave Eggers    | 504   |
| Neil Gaiman    | 465   |
| Freida Harris  | 428   |
| George Saunders| 367   |
| David Foster Wallace | 343 |
| Don DeLillo    | 320   |
| Patti Smith    | 304   |
| Jhumpa Lahiri | 291   |
| Dan Harris     | 256   |
| John Steinbeck| 181   |
+-----+-----+
12 rows in set (0.00 sec)

```

```

SELECT
  author_fname,
  author_lname,
  Max(pages)
FROM books
GROUP BY author_lname,
         author_fname;

```

SUM

Sum all pages in the entire database

```
mysql> SELECT SUM(Pages) FROM Books;
+-----+
| SUM(Pages) |
+-----+
|      6623 |
+-----+
1 row in set (0.00 sec)
```

Sum all pages each author has written

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS FullName,
-> SUM(Pages) AS TotalPages FROM Books GROUP BY 1 ORDER BY 2 DESC;
+-----+-----+
| FullName          | TotalPages |
+-----+-----+
| Dave Eggers       |      1293 |
| Neil Gaiman       |      977  |
| Raymond Carver   |      702  |
| David Foster Wallace | 672  |
| Michael Chabon   |      634  |
| Jhumpa Lahiri    |      489  |
| Freida Harris    |      428  |
| George Saunders  |      367  |
| Don DeLillo       |      320  |
| Patti Smith       |      304  |
| Dan Harris        |      256  |
| John Steinbeck   |      181  |
+-----+-----+
12 rows in set (0.00 sec)
```

```
SELECT author_fname,
author_lname,
Sum(pages)
FROM books
GROUP BY
author_lname,
author_fname;
```

AVG

Calculate the average released_year across all books

```
mysql> SELECT AVG(released_year) FROM Books;
+-----+
| AVG(released_year) |
+-----+
|      1999.7895 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT Title , ROUND(AVG(released_year),0) AS Avg_Released_Year FROM Books Group BY Title;
+-----+-----+
| Title           | Avg_Released_Year |
+-----+-----+
| The Namesake    |      2003         |
| Norse Mythology |      2016         |
| American Gods   |      2001         |
| Interpreter of Maladies | 1996 |
| A Hologram for the King: A Novel | 2012 |
| The Circle      |      2013         |
| The Amazing Adventures of Kavalier & Clay | 2000 |
| Just Kids       |      2010         |
| A Heartbreaking Work of Staggering Genius | 2001 |
| Coraline        |      2003         |
| What We Talk About When We Talk About Love: Stories | 1981 |
| Where I'm Calling From: Selected Stories | 1989 |
| White Noise     |      1985         |
| Cannery Row     |      1945         |
| Oblivion: Stories | 2004 |
| Consider the Lobster | 2005 |
| 10% Happier     |      2014         |
| fake_book       |      2001         |
| Lincoln In The Bardo | 2017 |
+-----+-----+
19 rows in set (0.00 sec)
```

Calculate the average stock quantity for books released in the same year

Aggregation

Group By

```
mysql> SELECT released_year, ROUND(AVG(stock_quantity),0) AS Stock_Quantity FROM Books GROUP BY 1;
+-----+-----+
| released_year | Stock_Quantity |
+-----+-----+
| 2003          |      66        |
| 2016          |      43        |
| 2001          |     134        |
| 1996          |      97        |
| 2012          |     154        |
| 2013          |      26        |
| 2000          |      68        |
| 2010          |      55        |
| 1981          |      23        |
| 1989          |      12        |
| 1985          |      49        |
| 1945          |      95        |
| 2004          |     172        |
| 2005          |      92        |
| 2014          |      29        |
| 2017          |    1000        |
+-----+-----+
16 rows in set (0.00 sec)
```