

MySQL - Aggregate Functions + Group BY - p1 - Lecture 14

#Count It calculates the count of records present on a particular column/ (*);
It can combine with other string Functions to write more complex query.

```
mysql> SELECT Count(title) FROM Books;
+-----+
| Count(title) |
+-----+
|      19 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT Count(author_lname) FROM Books;
+-----+
| Count(author_lname) |
+-----+
|      19 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT Count(DISTINCT author_lname) FROM Books;
+-----+
| Count(DISTINCT author_lname) |
+-----+
|          11 |
+-----+
1 row in set (0.01 sec)

mysql> SELECT Count(DISTINCT author_fname) FROM Books;
+-----+
| Count(DISTINCT author_fname) |
+-----+
|          12 |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SELECT COUNT(CONCAT(author_fname , " ", author_lname)) as fullName FROM Books;
+-----+
| fullName |
+-----+
|      19 |
+-----+
1 row in set (0.00 sec)

mysql> SELECT COUNT(DISTINCT(CONCAT(author_fname , " ", author_lname))) as fullName FROM Books;
+-----+
| fullName |
+-----+
|          12 |
+-----+
1 row in set (0.00 sec)
```

How many titles contain "the"? - "LIKE", "%", COUNT,

```
mysql> SELECT COUNT>Title) FROM Books WHERE TITLE LIKE "%the%";  
+-----+  
| COUNT>Title) |  
+-----+  
|       6      |  
+-----+  
1 row in set (0.00 sec)
```

Provide the detail of a title where it has "The" in the title.

```
mysql> SELECT Title FROM Books WHERE TITLE LIKE "%the%";  
+-----+  
| Title |  
+-----+  
| The Namesake  
| A Hologram for the King: A Novel  
| The Circle  
| The Amazing Adventures of Kavalier & Clay  
| Consider the Lobster  
| Lincoln In The Bardo  
+-----+  
6 rows in set (0.00 sec)
```

```
mysql> SELECT Title , COUNT>Title) FROM Books WHERE TITLE LIKE "%the%" GROUP BY Title;  
+-----+-----+  
| Title | COUNT>Title) |  
+-----+-----+  
| The Namesake          | 1  
| A Hologram for the King: A Novel | 1  
| The Circle            | 1  
| The Amazing Adventures of Kavalier & Clay | 1  
| Consider the Lobster        | 1  
| Lincoln In The Bardo      | 1  
+-----+-----+  
6 rows in set (0.00 sec)
```

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName FROM Books;  
+-----+  
| AuthorName |  
+-----+  
| Jhumpa Lahiri  
| Neil Gaiman  
| Neil Gaiman  
| Jhumpa Lahiri  
| Dave Eggers  
| Dave Eggers  
| Michael Chabon  
| Patti Smith  
| Dave Eggers  
| Neil Gaiman  
| Raymond Carver  
| Raymond Carver  
| Don DeLillo  
| John Steinbeck  
| David Foster Wallace  
| David Foster Wallace  
| Dan Harris  
| Freida Harris  
| George Saunders  
+-----+  
19 rows in set (0.00 sec)  
  
mysql> SELECT SUM(Pages) FROM Books;  
+-----+  
| SUM(Pages) |  
+-----+  
|      6623   |  
+-----+  
1 row in set (0.01 sec)
```

"GROUP BY summarizes or aggregates identical data into single rows"

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

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

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName , SUM(Pages) FROM Books GROUP BY AuthorName ORDER BY 2 DESC;
+-----+-----+
| AuthorName | SUM(Pages) |
+-----+-----+
| 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)
```

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName , SUM(Pages) FROM Books GROUP BY 1 ORDER BY 2 DESC;
+-----+-----+
| AuthorName | SUM(Pages) |
+-----+-----+
| 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 |
+-----+-----+
```

Let me the count of books written by each author

Group By

Count - aggregate function

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName , COUNT>Title as "Books Written" FROM Books GROUP BY 1 ORDER BY 2 DESC;
+-----+-----+
| AuthorName | 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)

mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName , COUNT(*) as "Books Written" FROM Books GROUP BY 1 ORDER BY 2 DESC;
+-----+-----+
| AuthorName | 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 |
+-----+-----+
```

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName , COUNT(*) as "Books Written" FROM Books GROUP BY 1 ORDER BY `Books Written` DESC;
+-----+-----+
| AuthorName | 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)
```

Use back ticks to call the name having spaces. So that your Group By & Order By functions well.

Performing Aggregation Function requires the corresponding columns need to be group by to get the result.

Group By will produce 12 records [Each instance] - Your aggregated column automatically fixes the group and find the SUM/Count/Avg/Min/Max/etc... according to each instance.

```
mysql> SELECT * FROM Books;
+----+-----+-----+-----+-----+-----+
| book_id | title | author_fname | author_lname | released_year | stock_quantity | pages |
+----+-----+-----+-----+-----+-----+
| 1 | The Namesake | Jhumpa | Lahiri | 2003 | 32 | 291 |
| 2 | Norse Mythology | Neil | Gaiman | 2016 | 43 | 304 |
| 3 | American Gods | Neil | Gaiman | 2001 | 12 | 465 |
| 4 | Interpreter of Maladies | Jhumpa | Lahiri | 1996 | 97 | 198 |
| 5 | A Hologram for the King: A Novel | Dave | Eggers | 2012 | 154 | 352 |
| 6 | The Circle | Dave | Eggers | 2013 | 26 | 504 |
| 7 | The Amazing Adventures of Kavalier & Clay | Michael | Chabon | 2000 | 68 | 634 |
| 8 | Just Kids | Patti | Smith | 2010 | 55 | 304 |
| 9 | A Heartbreaking Work of Staggering Genius | Dave | Eggers | 2001 | 104 | 437 |
| 10 | Coraline | Neil | Gaiman | 2003 | 100 | 208 |
| 11 | What We Talk About When We Talk About Love: Stories | Raymond | Carver | 1981 | 23 | 176 |
| 12 | Where I'm Calling From: Selected Stories | Raymond | Carver | 1989 | 12 | 526 |
| 13 | White Noise | Don | DeLillo | 1985 | 49 | 320 |
| 14 | Cannery Row | John | Steinbeck | 1945 | 95 | 181 |
| 15 | Oblivion: Stories | David | Foster Wallace | 2004 | 172 | 329 |
| 16 | Consider the Lobster | David | Foster Wallace | 2005 | 92 | 343 |
| 17 | 10% Happier | Dan | Harris | 2014 | 29 | 256 |
| 18 | fake_book | Freida | Harris | 2001 | 287 | 428 |
| 19 | Lincoln In The Bardo | George | Saunders | 2017 | 1000 | 367 |
+----+-----+-----+-----+-----+-----+
19 rows in set (0.00 sec)
```

```
mysql> SELECT Concat(author_fname, " ", author_lname) AS AuthorName , SUM(pages) , MIN(stock_quantity) FROM Books Group By 1;
+-----+-----+-----+
| AuthorName | SUM(pages) | MIN(stock_quantity) |
+-----+-----+-----+
| Jhumpa Lahiri | 489 | 32 |
| Neil Gaiman | 977 | 12 |
| Dave Eggers | 1293 | 26 |
| Michael Chabon | 634 | 68 |
| Patti Smith | 304 | 55 |
| Raymond Carver | 702 | 12 |
| Don DeLillo | 320 | 49 |
| John Steinbeck | 181 | 95 |
| David Foster Wallace | 672 | 92 |
| Dan Harris | 256 | 29 |
| Freida Harris | 428 | 287 |
| George Saunders | 367 | 1000 |
+-----+-----+-----+
12 rows in set (0.00 sec)
```

Group BY

Aggregation