## **ORDER BY**

This lesson discusses how to use the ORDER BY clause.

## **ORDER BY Clause**

In the previous couple of sections, we have seen how to query data from a table. The retrieved rows aren't printed in any particular order. The **ORDER BY** clause allows us to print the retrieved rows in an orderly fashion based on the criteria we specify.

**Example Syntax** 

SELECT col1, col2, ... coln

FROM table

WHERE col3 LIKE "%some-string%"

ORDER BY col3

Connect to the terminal below by clicking in the widget. Once connected, the command line prompt will show up. Enter or copy and paste the command ./DataJek/Lessons/11lesson.sh and wait for the mysql prompt to start-up.

```
-- The lesson queries are reproduced below for convenient copy/paste into the terminal.
-- Query 1
SELECT * FROM Actors ORDER BY FirstName;
-- Query 2
```

```
SELECT * FROM Actors ORDER BY FirstName DESC;

-- Query 3

SELECT * FROM Actors ORDER BY NetWorthInMillions, FirstName;

-- Query 4

SELECT * FROM Actors ORDER BY NetWorthInMillions, SecondName;

-- Query 5

SELECT * FROM Actors ORDER BY NetWorthInMillions DESC, FirstName ASC;

-- Query 6

SELECT * FROM Actors ORDER BY NetWorthInMillions DESC, FirstName DESC;

-- Query 7

SELECT * FROM Actors ORDER BY BINARY FirstName;

-- Query 8

SELECT * FROM Actors ORDER BY NetWorthInMillions;

-- Query 9

SELECT * FROM Actors ORDER BY NetWorthInMillions;
```

Terminal



1. Suppose we want to print the names of all the actors sorted in alphabetical order. We can do so using the following query:

```
SELECT * FROM Actors ORDER BY FirstName;
```

```
mysql> SELECT * FROM Actors ORDER BY FirstName;
| Id | FirstName | SecondName | DoB | Gender | MaritalStatus | NetWorthInMillions |
 9 | Amitabh | Bachchan | 1942-10-11 | Male | Married | 3 | Angelina | Jolie | 1975-06-04 | Female | Single | 1 | Brad | Pitt | 1963-12-18 | Male | Single | 2 | Jennifer | Aniston | 1969-11-02 | Female | Single | 4 | Johnny | Depp | 1963-06-09 | Male | Single | 8 | Kim
                                                                                                             400 I
                                                                                                               100 I
                                                                                                               240 I
                                                                                                               240 |
                                                                                                               200 1
 370 I
                                                                                                              1000 I
                                                                                                                60 I
                                                                                                                 28 I
                                                                                                                600 I
                                                                                                                570 I
11 rows in set (0.00 sec)
```

The **ORDER BY** clause is followed by the column name on which we intend to sort. This column is called the **sort key**. By default, the sorting is case-insensitive and in ascending order. Sorting of string columns depends on the character set being used and the collation order.

2. We can also print the rows in descending order as the following query demonstrates:

SELECT \* FROM Actors ORDER BY FirstName DESC;

Id   FirstName								
6   Tom							+	
10   Shohrukh	ī	Khon	1965-11-02	ı	Male	Married	I	680
11   priyonka	ı	Chopna	1982-97-18	I	Female	Married	I	28
5   Natalie	ı	Portman	1981-26-69	I	Male	Married	I	69
7   Kylie	ı	Jenner	1997-28-12	I	Female	Married	I	1929
8 1 Kim	ı	Kardoshion	1989-10-21	I	Female	Married	I	370
4   Johnny	ı	Depp	1963-96-69	I	Mate	Single	I	200
2   Jennifer	I	Aniston	1969-11-02	I	Female	Single	I	240
1   Brad	1	Pitt	1963-12-18	ı	Male	Single	I	240
3   Angelina	1	Jolie	1975-96-64	١	Fenale	Single	1	100
9   Amitabh	1	Bachchan	1942-18-11	١	Male	Married	1	400

3. We can also specify more than one sort key. In this case if a tie occurs based on the first sort key, it is broken using the second sort key. For example, some actors in our table have the same net worth. We can specify net worth as the first sort key and the first name as the second sort key as follows:

SELECT \* FROM Actors ORDER BY NetWorthInMillions, FirstName;

d   Firstkane	SecondName	DoB	Gender	MaritalStatus	NetWorthInMilitions
1   pri yanka	Chopina	1982-07-18	Female	Married	2.8
5   Notolie	Port oan	1981 06 99	Maile	Married	68
3   Angeline	lalie	1975-06-94	Female	Single	129
4   Johnny	Depp	1363-06-99	Male	Single	288
1   Brad	Pitt	1963-12-18	1 Male	Single	210
2   Jennifer	Aniston	1969-11-02	Female	Single	240
8   Kim	Kardashtan	1980-10-21	Female	Married	378
9   Am. Labh	Bachchan	1942-19-11	Male	Married	489
6   Torr	(ruise	1962-07-03	Male	Divorced	578
8   Shaheulch	Kaga	1965-11-92	Nole	Married	689
7   Kylie	Jerner	1997-08-10	Female	Married	1989

Note the highlighted lines above show Brad Pitt first and Jennifer Aniston second even though both have the same net worth as the tie is broken by the second sort key which is the first name. If we make the second sort key second name, then the row for Jennifer Aniston will rank higher as shown below:

rysql> SELECT • F						
					NetWorthInMillions	
+					¥	
11   priyanka	Chapra	1982-07-18	Female	Married	1 28	
5   Natulie	Portion	1981-06-03	I Mate	Morried	1 63	
3   Angelina	Joile	1975-86-84	Female	Single	193	
4   Johnny	Desp	1963-86-83	I Nole	Single	799	
Z   Jennifer	Aniston	1969-11-02	I Fenale	Single	1 240	1
1 1 1 Brod	Pitt	1983-12-18	Male	Single	1 240	
8   Kim	Kardashian	1988-18-21	Frmale	Marcied	370	
9   Anitabh	Bachchan	1942-10-11	I Mole	Married	1 193	
6   Ton	Cruise	1962-07-03	I Note	Divorced	570	
1 18   Shahrulch	Khan	1965-11-92	Nole	Married	668	
		1997-08-10		Married	1200	

4. We can also control the ascending or descending order we desire for each sort key. Consider the following query:

```
SELECT * FROM Actors ORDER BY NetWorthInMillions DESC, FirstName ASC;
```

```
mysql> SELECT * FROM Actors CROER BY NetWorthInWilliams DESC, FirstName ASC;
| Id | FirstName | SecondRame | DoB | | Gender | MaritalStatus | NetWorthInMillions |
 7 | Kylte | Januar | 1987-28 10 | Female | Macried
10 | Shahrukh | Chan | 1985-11-22 | Male | Macried
6 | Jan | Cruise | 1962-27-23 | Male | Divorced
9 | Amitabh | Bachchan | 1942-10-11 | Male | Macried
                                                                                                             620 1
                                                                                                              579 1
                                                                                                              120 1
                    | Kandashian | 1980-10-21 | Female | Married
   8 | Kin
                                                                                                              370 1
                     | Pitt | | 1963-12-18 | Male | | Single
   1 | Broad
2 | Jerniter | Amiston | 1989-11-02 | 1983
| 1983 26-29 | Nole
   1 | Brad
                                       | 1989-11-02 | Female | Single
                                                                                                              Z40 I
   4 | Johnny | Dopp | 1963-26-29 | Male | Single
3 | Angelino | Jolie | 1975-26-24 | Fenale | Single
                                                                                                              120 |
   5 | Natalie | Portion
                                        1981 26 29 | Male | Married
                                                                                                               60 1
                                         1982-27-18 | Femole | Married
  11 | priyonko | Choora
11 rows in set (0.00 sec)
```

Note that Kylie Jenner now ranks at the top with a net worth of 1 billion USD. The rows are first sorted in descending order based on net worth of the actors. The highlighted rows show Brad and Jennifer who are tied on net worth. The second sort key decides who ranks higher and as the letter B occurs before the letter J, the row for Brad Pitt is shown first. If we change the sort order for the second sort key to descending, then the row for Jennifer Aniston will rank higher as shown below:

```
SELECT * FROM Actors ORDER BY NetWorthInMillions DESC, FirstName
DESC;
```

	NetWorthinWilliams	Marital Status	Gender, I	SIGH	SecondName	Id   FirstName
ř	1380	Married	Femule I	1397-08-10	Jerner	7   Kylie
	620	Married	Hale	1365-11-02	Khan I	10   Shahrukh
	5/0	Diverced	Male I	1362-07-03 1	Crui sc	6 1 fort
	480	Married	Male I	1942-18-11 (	Rochetion	9   Amiliabh
	370	Married	Ferote 1	1980-12-21	Kundashtan I	8 1 Kin
1	210	Single	Ferole 1	1969-11-02	Aniston	2   Jennifer
T.	249	Single	Male	1863-12-18 1	Pitt	1   Brod
	226	Single	Hale L	1963 96 99 1	Серр	4   Johnny
	180	Single	Ferale 1	1975-88-84	Jolie	3   Angelina
	69	Married	Male 1	1981-98-99	Portner	5   Natulie
	28	Married	Female 1	1982-07-18	Chopre	11   priyanka
+			+	++		

- 5. Sort order is undefined in case sort keys have the same value for rows.
- 6. MySQL ignores case when comparing strings in the ORDER BY clause, which implies strings "Kim", "kIm" and "kim" are treated equally. If we want ASCII comparison we need to specify the **BINARY** keyword before the sort key. To demonstrate the effect of the **BINARY** keyword, execute the following query and observe the results:

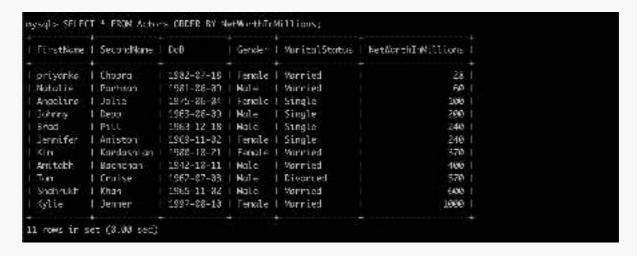
SELECT \* FROM Actors ORDER BY BINARY FirstName;

Id   FirstName	SecondName	8a0 I	1 Gender	MaritalStatus	NetMorthInMillions
		1	1		
9   Amitabh	Bochchan	1 1942-18-11	Mate	Morried	100
3   Angelina	Jolie	1 1975-96-64	1 Female	Single	100
1   Brad	Pitt	1 1963-12-18	1 Male	Single	240
2   Jenni fer	Aniston	1 1969-11-82	I Female	Single	240
4   Johnny	Depp	1 1963-86-69	Male	Single	200
8   Kim	Kandashian	1 1989 18 21	Female	Morried	370
7   Kylic	Jenner	1 1997-98-19	Female	Morried	1020
5   Natalie	Portnon	1 1981-95-69	Male	Morried	60
10   Shahrukh	Khan	1 1965-11-02	Male	Morried	620
6   Torr	Cruise	1 1982-97-93	1 Male	Divorced	570
11   priyarka	Chopna	1 1982-97-18	Femile	Morried	1 28

Note that the row for Priyanka Chopra occurs last because upper case letters appear before lower case letters in ASCII ordering.

7. The **CAST** function can also be used with the **ORDER BY** clause. The **CAST** function allows us to treat a column as a different type. For example, the Actors table can be sorted on the NetWorthInMillions as follows:

## SELECT \* FROM Actors ORDER BY NetWorthInMillions;



The NetWorthInMillions column is sorted numerically from smallest to largest. We can also sort the NetWorthInMillions column as if strings using the **CAST** function as follows:

SELECT \* FROM Actors ORDER BY CAST(NetWorthInMillions AS CHAR);

```
mysql> SELECT * FROM Actors ORDER BY CAST(NetWorthInWillions AS CHAR);
| Id | FirstName | SecondName | BoB | Gender | MaritalStatus | NetMorthInMillions |
  3 | Angelina | Iolia | 1975-06-04 | Female | Single 7 | Kylie | Jenner | 1997-08-10 | Female | Morried 4 | Johnny | Depp | 1963-06-08 | Male | Single 1 | Brud | 1 Pitt | 1968-12-18 | Male | Single
                                                                                                            129 1
                                                        Femule Married
                                                                                                           1020 |
                                                                                                            200 1
                                                                                                            Z40 1
  2 | Jernifer | Aniston | 1 1968 11 82 | Female | Single
  11 | priyorko | Chopru | | 1982-07-18 | Femule | Morried
                                                                                                             28 1
                                                                                                            370 1
   8 | Kin | | Kandashian | 1988 10 21 | Female | Married
   9 | Amitabh | | Bachchan | | 1942-10-11 |
                                                        Male
                                                                                                            420 1
                                                                    Married
   8 | Ion | | Cruise | 1962-02-03 | Male
5 | Natalie | Partnan | 1981-06-03 | Male
10 | Shahrukh | Khan | 1965-11-02 | Male
                                                        Male
                                                                    Diverced
                                                                                                            520 1
                                                                    Married
                                                                                                             69 1
  10 | Sachruka | Kach
                                                                    Marm ed
                                                                                                            620 1
ll nows in set (0,00 sec)
```