Updateable Views

In this lesson we will learn how to modify the data in a view.

Updatable Views

Views are not only used to query data; they can also be used to update data in the underlying tables. It is possible to insert or update rows in the base table, and in the same vein, delete rows from the table using an updatable view. In order for a view to become updatable, it must abide by certain conditions.

If the SELECT query that creates the view has aggregate functions (MAX, MIN, COUNT, SUM, etc.), DISTINCT keyword, LEFT JOIN or GROUP BY, HAVING, and UNION clauses, the resulting view will not be updatable. Similarly, a subquery that refers to the same table that appears in the FROM clause prohibits updates to the base table.

Syntax

> UPDATE **view**
>
> SET **col1** = **value1**, **col2** = **value2**,...**col*n*** = **value*n***
>
> WHERE <**condition**>

> 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/42lesson.sh** and wait for the MySQL prompt to start-up.

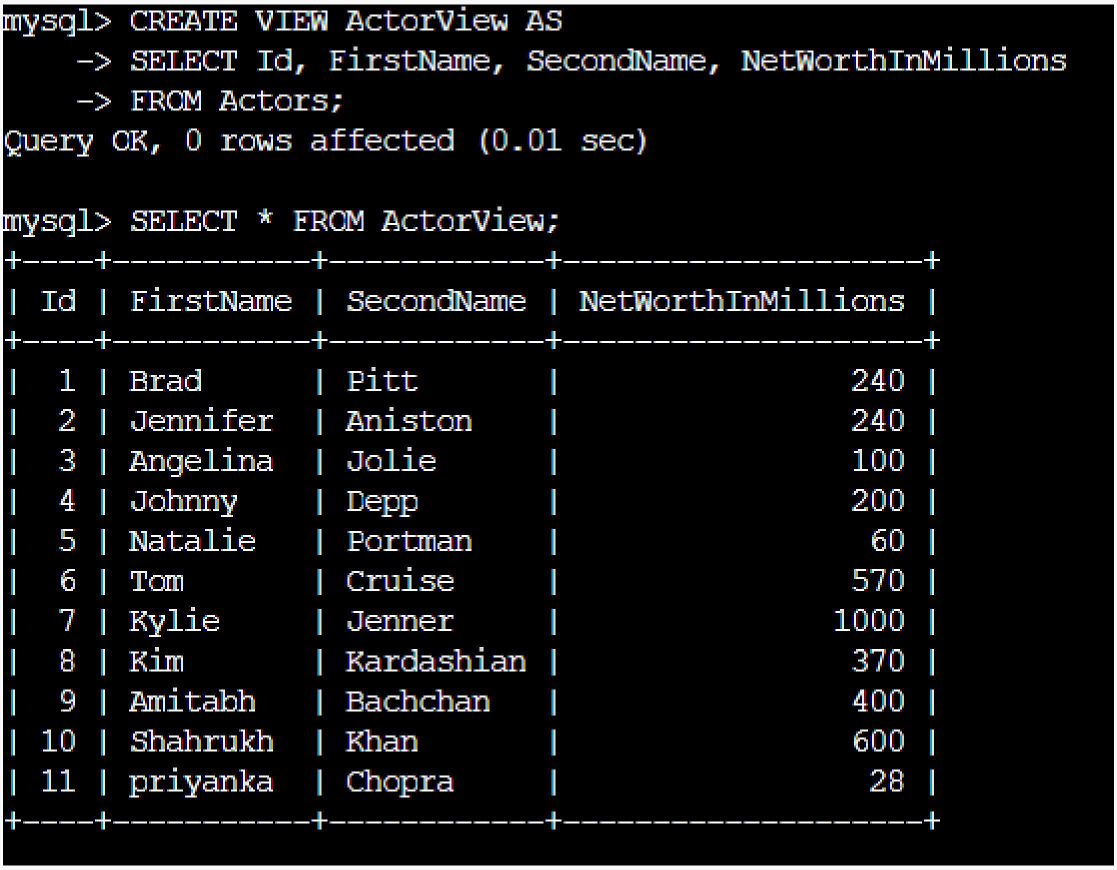
```
-- The lesson queries are reproduced below for convenient copy/paste into the terminal.

-- Query 1
CREATE VIEW ActorView AS
SELECT Id, FirstName, SecondName, NetWorthInMillions
FROM Actors;

-- Query 2
UPDATE ActorView
SET
NetWorthInMillions = 250
WHERE
Id =1;

-- Query 3
SELECT Table_name, is_updatable
FROM information_schema.views
WHERE table_schema = 'MovieIndustry';

-- Query 4
DELETE FROM ActorView
WHERE Id = 11;
```

● Terminal

1. Let's begin by creating a simple view to show the Actor names and their net worth

   ```sql
   CREATE VIEW ActorView AS
   SELECT Id, FirstName, SecondName, NetWorthInMillions
   FROM Actors;
   ```

   We can query data from this view as follows:

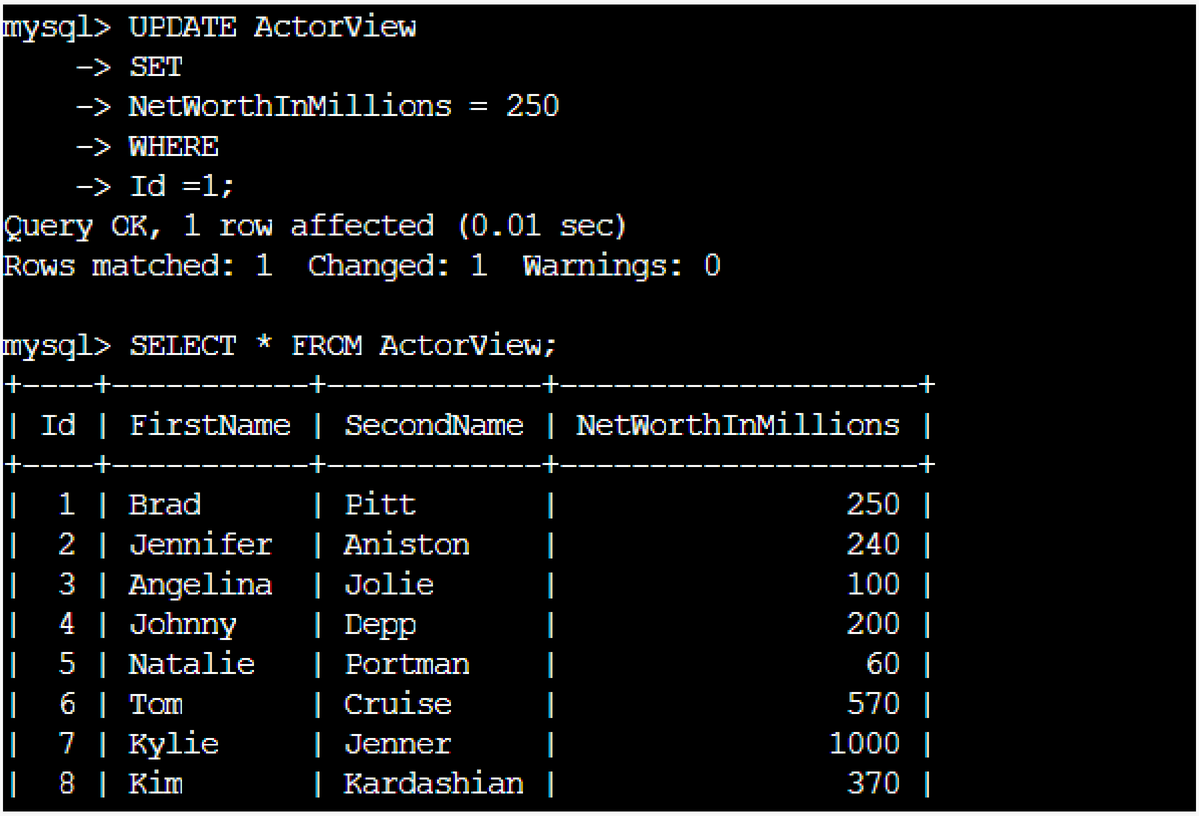


```
mysql> CREATE VIEW ActorView AS
    -> SELECT Id, FirstName, SecondName, NetWorthInMillions
    -> FROM Actors;
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT * FROM ActorView;
+----+-----------+------------+--------------------+
| Id | FirstName | SecondName | NetWorthInMillions |
+----+-----------+------------+--------------------+
|  1 | Brad      | Pitt       |                240 |
|  2 | Jennifer  | Aniston    |                240 |
|  3 | Angelina  | Jolie      |                100 |
|  4 | Johnny    | Depp       |                200 |
|  5 | Natalie   | Portman    |                 60 |
|  6 | Tom       | Cruise     |                570 |
|  7 | Kylie     | Jenner     |               1000 |
|  8 | Kim       | Kardashian |                370 |
|  9 | Amitabh   | Bachchan   |                400 |
| 10 | Shahrukh  | Khan       |                600 |
| 11 | priyanka  | Chopra     |                 28 |
+----+-----------+------------+--------------------+
```

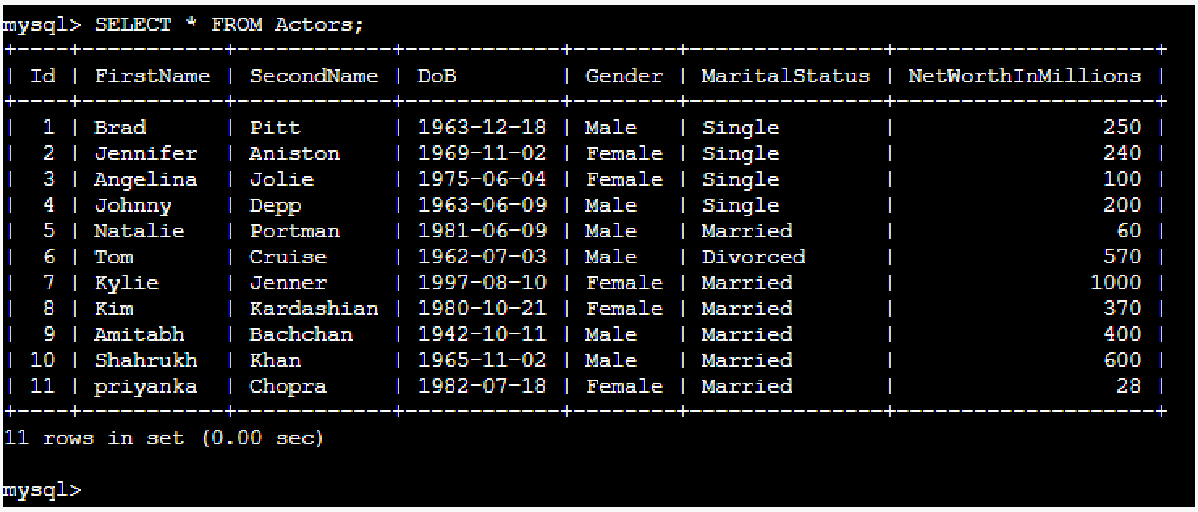
2. Say we want to update the net worth of Brad Pitt to 250 million dollars. This can be done with the following query:

    ```
    UPDATE ActorView
    SET
    NetWorthInMillions = 250
    WHERE
    Id =1;
    ```

    The change is visible in the view as well as the underlying Actors table.



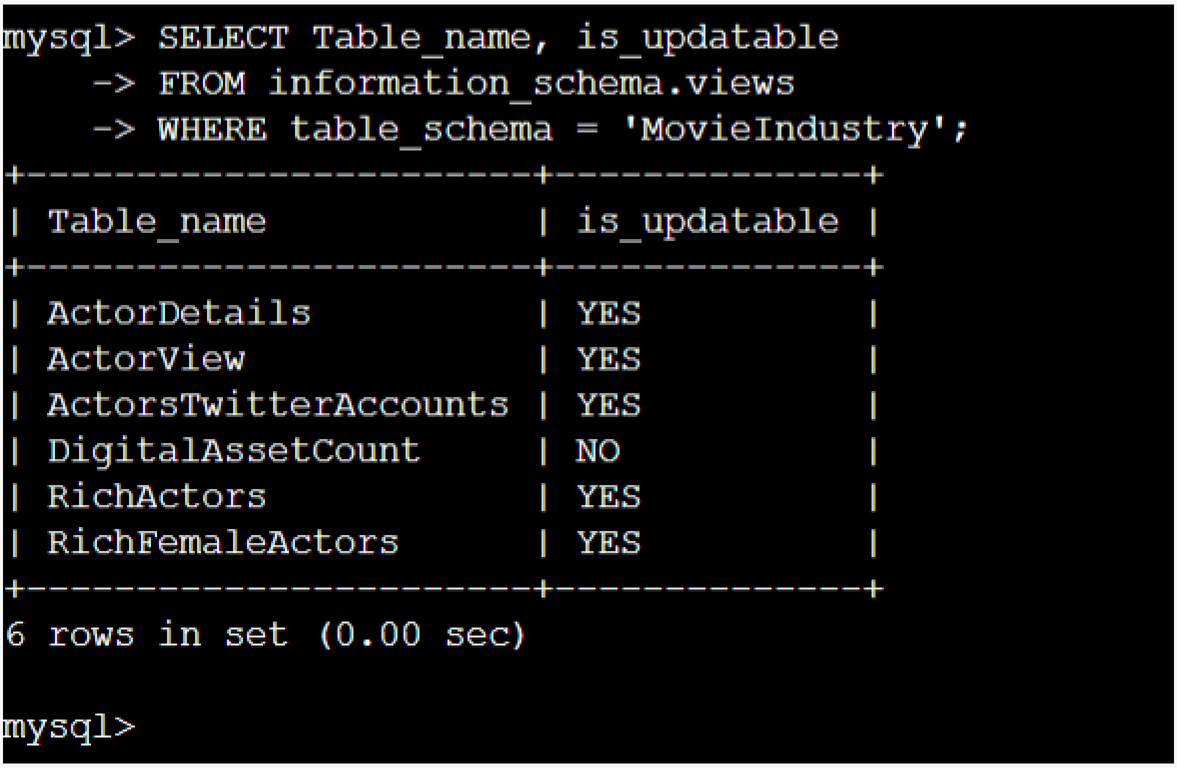
```
mysql> UPDATE ActorView
    -> SET
    -> NetWorthInMillions = 250
    -> WHERE
    -> Id =1;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM ActorView;
+----+-----------+------------+--------------------+
| Id | FirstName | SecondName | NetWorthInMillions |
+----+-----------+------------+--------------------+
|  1 | Brad      | Pitt       |                250 |
|  2 | Jennifer  | Aniston    |                240 |
|  3 | Angelina  | Jolie      |                100 |
|  4 | Johnny    | Depp       |                200 |
|  5 | Natalie   | Portman    |                 60 |
|  6 | Tom       | Cruise     |                570 |
|  7 | Kylie     | Jenner     |               1000 |
|  8 | Kim       | Kardashian |                370 |
```



```
mysql> SELECT * FROM Actors;
+----+-----------+------------+------------+--------+---------------+--------------------+
| Id | FirstName | SecondName | DoB        | Gender | MaritalStatus | NetWorthInMillions |
+----+-----------+------------+------------+--------+---------------+--------------------+
|  1 | Brad      | Pitt       | 1963-12-18 | Male   | Single        |                250 |
|  2 | Jennifer  | Aniston    | 1969-11-02 | Female | Single        |                240 |
|  3 | Angelina  | Jolie      | 1975-06-04 | Female | Single        |                100 |
|  4 | Johnny    | Depp       | 1963-06-09 | Male   | Single        |                200 |
|  5 | Natalie   | Portman    | 1981-06-09 | Male   | Married       |                 60 |
|  6 | Tom       | Cruise     | 1962-07-03 | Male   | Divorced      |                570 |
|  7 | Kylie     | Jenner     | 1997-08-10 | Female | Married       |               1000 |
|  8 | Kim       | Kardashian | 1980-10-21 | Female | Married       |                370 |
|  9 | Amitabh   | Bachchan   | 1942-10-11 | Male   | Married       |                400 |
| 10 | Shahrukh  | Khan       | 1965-11-02 | Male   | Married       |                600 |
| 11 | priyanka  | Chopra     | 1982-07-18 | Female | Married       |                 28 |
+----+-----------+------------+------------+--------+---------------+--------------------+
11 rows in set (0.00 sec)

mysql>
```

3. To find out which views in the database are updatable we can query the **views** table in the **information_schema** database. This table has a column **is_updatable** that indicates the type of view. Execute the following query to find out the updatable views in the MovieIndustry database:

```
SELECT Table_name, is_updatable
FROM information_schema.views
WHERE table_schema = 'MovieIndustry';
```

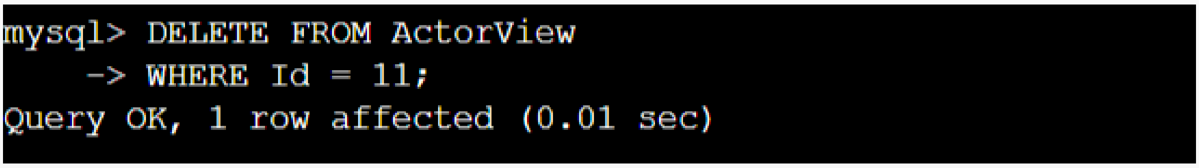


```
mysql> SELECT Table_name, is_updatable
    -> FROM information_schema.views
    -> WHERE table_schema = 'MovieIndustry';
+------------------------+--------------+
| Table_name             | is_updatable |
+------------------------+--------------+
| ActorDetails           | YES          |
| ActorView              | YES          |
| ActorsTwitterAccounts  | YES          |
| DigitalAssetCount      | NO           |
| RichActors             | YES          |
| RichFemaleActors       | YES          |
+------------------------+--------------+
6 rows in set (0.00 sec)

mysql>
```

The database contains five views we created in the last lesson as well as the one created above. We can see that the **DigitalAssetCount** view is not updatable because an aggregate function was used in its creation. The same is true for the **RichActors** view. A view that refers to a non-updatable view also becomes non-updatable which is why the **RichFemaleActors** view is non-updatable. The **ActorsTwitterAccounts** and **ActorDetails** views created in the previous lesson and the **ActorView** view created in this lesson are updatable views.

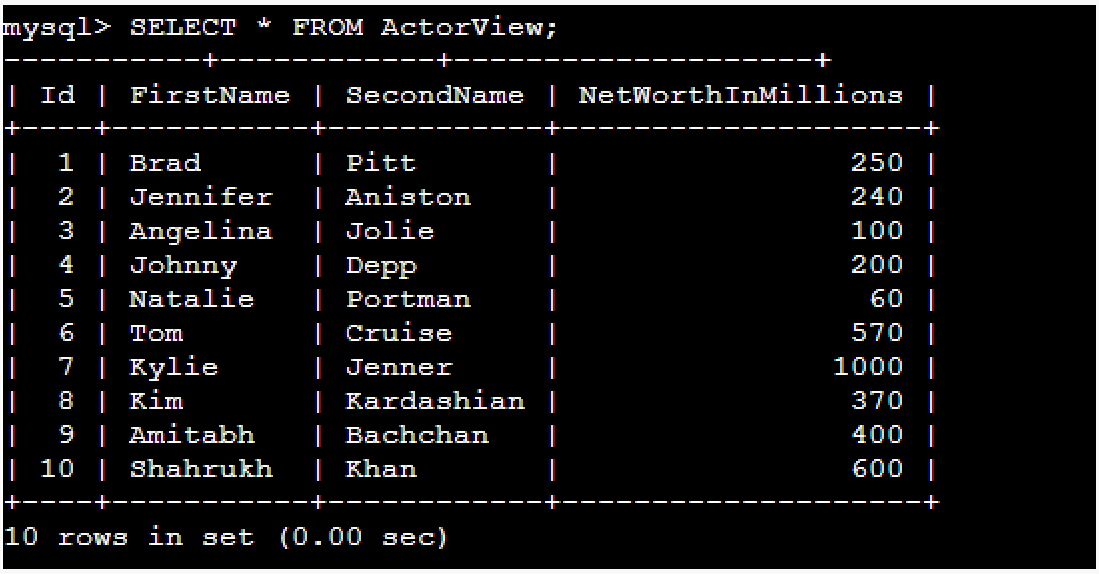
4. Working with the view we created in step 1, we will now delete the actor details corresponding to Id number 11.

```
DELETE FROM ActorView
WHERE Id = 11;
```

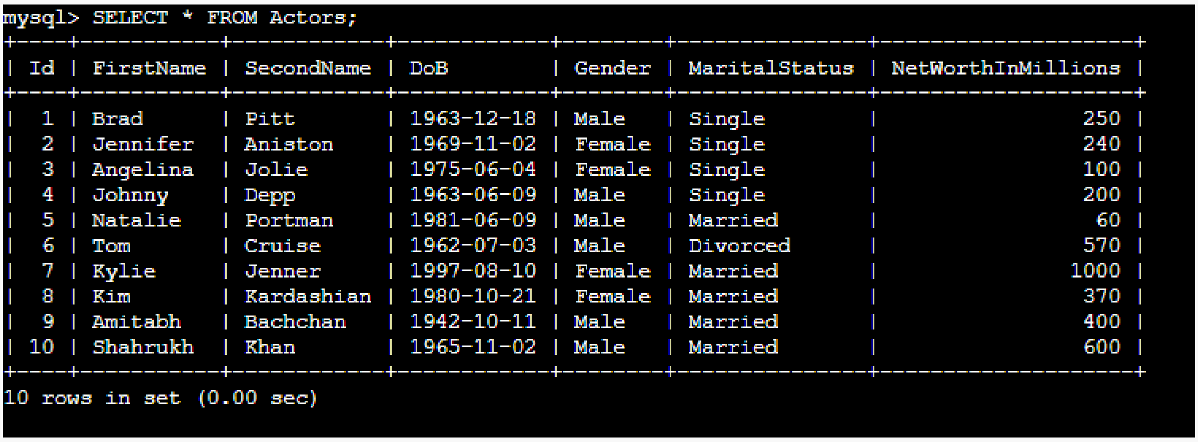


```
mysql> DELETE FROM ActorView
    -> WHERE Id = 11;
Query OK, 1 row affected (0.01 sec)
```

The operation is successful and one row is affected. We can check the view and the underlying table to confirm the deletion.



```
mysql> SELECT * FROM ActorView;
-----------+------------+--------------------+
| Id | FirstName | SecondName | NetWorthInMillions |
+----+-----------+------------+--------------------+
|  1 | Brad      | Pitt       |                250 |
|  2 | Jennifer  | Aniston    |                240 |
|  3 | Angelina  | Jolie      |                100 |
|  4 | Johnny    | Depp       |                200 |
|  5 | Natalie   | Portman    |                 60 |
|  6 | Tom       | Cruise     |                570 |
|  7 | Kylie     | Jenner     |               1000 |
|  8 | Kim       | Kardashian |                370 |
|  9 | Amitabh   | Bachchan   |                400 |
| 10 | Shahrukh  | Khan       |                600 |
+----+-----------+------------+--------------------+
10 rows in set (0.00 sec)
```



```
mysql> SELECT * FROM Actors;
+----+-----------+------------+------------+--------+---------------+--------------------+
| Id | FirstName | SecondName | DoB        | Gender | MaritalStatus | NetWorthInMillions |
+----+-----------+------------+------------+--------+---------------+--------------------+
|  1 | Brad      | Pitt       | 1963-12-18 | Male   | Single        |                250 |
|  2 | Jennifer  | Aniston    | 1969-11-02 | Female | Single        |                240 |
|  3 | Angelina  | Jolie      | 1975-06-04 | Female | Single        |                100 |
|  4 | Johnny    | Depp       | 1963-06-09 | Male   | Single        |                200 |
|  5 | Natalie   | Portman    | 1981-06-09 | Male   | Married       |                 60 |
|  6 | Tom       | Cruise     | 1962-07-03 | Male   | Divorced      |                570 |
|  7 | Kylie     | Jenner     | 1997-08-10 | Female | Married       |               1000 |
|  8 | Kim       | Kardashian | 1980-10-21 | Female | Married       |                370 |
|  9 | Amitabh   | Bachchan   | 1942-10-11 | Male   | Married       |                400 |
| 10 | Shahrukh  | Khan       | 1965-11-02 | Male   | Married       |                600 |
+----+-----------+------------+------------+--------+---------------+--------------------+
10 rows in set (0.00 sec)
```