Multi-Table Delete

This lesson demonstrates how to delete data from multiple tables.

Multi-Table Delete

We know how to delete data from a single table, however, if you are confronted with a situation where you want to delete data from one table and also any related data from other tables, you can employ the multi-table delete queries. An example scenario can be that when we delete an actor from our **Actors** table we also want all rows in the **DigitalAssets** table belonging to the deleted actor removed too.

Older Syntax

```
DELETE T1, T2
FROM T1, T2, T3
WHERE <condition>
```

Newer Syntax

Use the newer syntax as it reads better:

```
DELETE FROM T1, T2
USING T1, T2, T3
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/36lesson.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
DELETE Actors, DigitalAssets   -- Mention tables to delete rows from
FROM Actors   -- The inner join creates a derived table with matching rows from both tables
INNER JOIN DigitalAssets
ON Actors.Id = DigitalAssets.ActorId
WHERE AssetType = "Twitter";

-- Query 2
DELETE FROM Actors, DigitalAssets
USING Actors
INNER JOIN DigitalAssets
ON Actors.Id = DigitalAssets.ActorId
WHERE AssetType = "Twitter";

-- Query 3
DELETE Actors
FROM Actors
WHERE EXISTS ( SELECT *
               FROM Actors
               INNER JOIN DigitalAssets
               ON  Id = ActorId
               WHERE AssetType="Twitter");

-- Query 4
DELETE Actors
FROM Actors
WHERE EXISTS (SELECT *
              FROM DigitalAssets
              WHERE ActorId = Id AND AssetType = "Twitter");

-- Query 5
DELETE Actors, DigitalAssets   -- specify the tables to delete from
FROM Actors, DigitalAssets   -- reference tables
WHERE ActorId = Id   -- conditions to narrow down rows
AND FirstName = "Johnny"
AND AssetType != "Pinterest";
```

Terminal

1. Imagine we want to delete actors who have a Twitter account. At the

same time, we also want to remove their Twitter account information from our **DigitalAssets** table. We can delete intended rows from both tables as follows:

```
DELETE Actors, DigitalAssets   -- Mention tables to delete rows f
rom
FROM Actors    -- The inner join creates a derived table
               -- with matching rows from both tables
INNER JOIN DigitalAssets
ON Actors.Id = DigitalAssets.ActorId
WHERE AssetType = "Twitter";
```

```
mysql> DELETE Actors, DigitalAssets
    -> FROM Actors INNER JOIN DigitalAssets
    -> ON Actors.Id = DigitalAssets.ActorId
    -> WHERE AssetType = "Twitter";
Query OK, 12 rows affected (0.00 sec)

mysql> SELECT * FROM Actors;
+----+-----------+------------+------------+--------+---------------+--------------------+
| Id | FirstName | SecondName | DoB        | Gender | MaritalStatus | NetWorthInMillions |
+----+-----------+------------+------------+--------+---------------+--------------------+
|  1 | Brad      | Pitt       | 1963-12-18 | Male   | Single        |                240 |
|  4 | Johnny    | Depp       | 1963-06-09 | Male   | Single        |                200 |
|  7 | Kylie     | Jenner     | 1997-08-10 | Female | Married       |               1000 |
|  9 | Amitabh   | Bachchan   | 1942-10-11 | Male   | Married       |                400 |
| 11 | priyanka  | Chopra     | 1982-07-18 | Female | Married       |                 28 |
+----+-----------+------------+------------+--------+---------------+--------------------+
5 rows in set (0.00 sec)

mysql> SELECT * FROM DigitalAssets;
+-----------------------------------------------+-----------+---------------------+---------+
| URL                                           | AssetType | LastUpdatedOn       | ActorId |
+-----------------------------------------------+-----------+---------------------+---------+
| http://jennifer-aniston.org                   | Website   | 2019-10-11 23:14:05 |       2 |
| http://www.angelina-jolie.com                 | Website   | 2019-05-01 12:54:02 |       3 |
| http://www.tomcruise.com                      | Website   | 2019-10-23 09:56:33 |       6 |
| https://www.bradpittweb.com                   | Website   | 2020-01-01 23:12:13 |       1 |
| https://www.facebook.com/IamSRK               | Facebook  | 2019-11-02 01:00:54 |      10 |
| https://www.facebook.com/JenniferAniston      | Facebook  | 2019-11-11 15:00:00 |       2 |
| https://www.facebook.com/JohnChristopherOfficial | Website   | 2018-07-11 17:17:18 |       4 |
| https://www.facebook.com/KimKardashian        | Facebook  | 2019-09-04 18:07:38 |       8 |
| https://www.facebook.com/natalieportmandotcom | Facebook  | 2019-06-09 09:14:20 |       5 |
| https://www.facebook.com/officialtomcruise    | Facebook  | 2019-10-28 19:39:40 |       6 |
| https://www.instagram.com/bradpittoficial     | Instagram | 2019-05-15 16:25:02 |       1 |
| https://www.kkwbeauty.com                     | Website   | 2018-03-15 13:25:00 |       8 |
| https://www.natalieportman.com                | Website   | 2018-11-24 15:06:59 |       5 |
| https://www.pinterest.com/angelinajolie5601   | Pinterest | 2019-06-04 03:44:36 |       3 |
| https://www.pinterest.com/natalieportmandotcom | Pinterest | 2019-06-09 09:14:20 |       5 |
+-----------------------------------------------+-----------+---------------------+---------+
15 rows in set (0.00 sec)
```

You can observe from the output that rows from both tables get deleted. One way to think about the query is to realize that all the rows that are returned by the inner join of the two tables based on the joining criteria and the where condition are deleted from both the tables.

The alternative and newer syntax appears below:

```
DELETE FROM Actors, DigitalAssets
USING Actors
INNER JOIN DigitalAssets
ON Actors.Id = DigitalAssets.ActorId
WHERE AssetType = "Twitter";
```

2. Consider the query below which attempts to delete only the rows from the **Actor** table with Twitter accounts but fails:

```
DELETE Actors
FROM Actors
WHERE EXISTS ( SELECT *
               FROM Actors
               INNER JOIN DigitalAssets
               ON  Id = ActorId
               WHERE AssetType="Twitter");
```

```
mysql> DELETE Actors
    -> FROM Actors
    -> WHERE EXISTS ( SELECT *
    ->                FROM Actors
    ->                INNER JOIN DigitalAssets
    ->                ON  Id = ActorId
    ->                WHERE AssetType="Twitter");
ERROR 1093 (HY000): You can't specify target table 'Actors' for update in FROM clause
```

The above query fails because MySQL disallows rows to be deleted from a table if the same table also appears in the **SELECT** clause, i.e., we can't delete from a table that's read from in a nested subquery. In this case, the **Actors** table also appears in the inner query's **SELECT** clause. The same query is rewritten as a correlated query works:

```
DELETE Actors
FROM Actors
WHERE EXISTS (SELECT *
              FROM DigitalAssets
              WHERE ActorId = Id AND AssetType = "Twitter");
```

3. As another example, say we want to remove Johnny Depp from the **Actors** table and all his accounts except for his Pinterest from the **DigitalAssets** table at the same time. We can write a multi-table delete statement as follows:

```
DELETE Actors, DigitalAssets   -- specify the tables to delete fr
om

FROM Actors, DigitalAssets   -- reference tables

WHERE ActorId = Id   -- conditions to narrow down rows
AND FirstName = "Johnny"
AND AssetType != "Pinterest";
```

```
mysql> DELETE Actors, DigitalAssets   -- specify the tables to delete from
    ->
    -> FROM Actors, DigitalAssets   -- reference tables
    ->
    -> WHERE ActorId = Id   -- conditions to narrow down rows
    -> AND FirstName = "Johnny"
    -> AND AssetType != "Pinterest";
Query OK, 2 rows affected (0.01 sec)

mysql> SELECT * FROM Actors;
+----+-----------+------------+------------+--------+---------------+--------------------+
| Id | FirstName | SecondName | DoB        | Gender | MaritalStatus | NetWorthInMillions |
+----+-----------+------------+------------+--------+---------------+--------------------+
|  1 | Brad      | Pitt       | 1963-12-18 | Male   | Single        |                240 |
|  7 | Kylie     | Jenner     | 1997-08-10 | Female | Married       |               1000 |
|  9 | Amitabh   | Bachchan   | 1942-10-11 | Male   | Married       |                400 |
| 11 | priyanka  | Chopra     | 1982-07-18 | Female | Married       |                 28 |
+----+-----------+------------+------------+--------+---------------+--------------------+
4 rows in set (0.00 sec)

mysql> SELECT * FROM DigitalAssets;
+-----------------------------------------------+-----------+---------------------+---------+
| URL                                           | AssetType | LastUpdatedOn       | ActorId |
+-----------------------------------------------+-----------+---------------------+---------+
| http://jennifer-aniston.org                   | Website   | 2019-10-11 23:14:05 |       2 |
| http://www.angelina-jolie.com                 | Website   | 2019-05-01 12:54:02 |       3 |
| http://www.tomcruise.com                      | Website   | 2019-10-23 09:56:33 |       6 |
| https://www.bradpittweb.com                   | Website   | 2020-01-01 23:12:13 |       1 |
| https://www.facebook.com/IamSRK               | Facebook  | 2019-11-02 01:00:54 |      10 |
| https://www.facebook.com/JenniferAniston      | Facebook  | 2019-11-11 15:00:00 |       2 |
| https://www.facebook.com/KimKardashian        | Facebook  | 2019-09-04 18:07:38 |       8 |
| https://www.facebook.com/natalieportmandotcom | Facebook  | 2019-06-09 09:14:20 |       5 |
| https://www.facebook.com/officialtomcruise    | Facebook  | 2019-10-28 19:39:40 |       6 |
| https://www.instagram.com/bradpittoficial     | Instagram | 2019-05-15 16:25:02 |       1 |
| https://www.kkwbeauty.com                     | Website   | 2018-03-15 13:25:00 |       8 |
| https://www.natalieportman.com                | Website   | 2018-11-24 15:06:59 |       5 |
| https://www.pinterest.com/angelinajolie5601   | Pinterest | 2019-06-04 03:44:36 |       3 |
| https://www.pinterest.com/natalieportmandotcom | Pinterest | 2019-06-09 09:14:20 |       5 |
+-----------------------------------------------+-----------+---------------------+---------+
14 rows in set (0.00 sec)
```

4. **ORDER BY** and **LIMIT** clauses can't be used with multi-table deletes.