Feb 13 - 2018

Week 5

Subqueries

Q51. Display the employees whose job id is the same as the employee whose id is 141.

Step 1.

```
mysql> Select job_id
    -> from employees
    -> where employee_id = 141;
+----------+
| job_id   |
+----------+
| ST_CLERK |
+----------+
1 row in set (0.00 sec)

mysql> Select last_name Name, Job_id
    -> From employees
    -> where job_id = (Select job_id
    ->                 from employees
    ->                 where employee_id = 141);
+--------+----------+
| Name   | Job_id   |
+--------+----------+
| Rajs   | ST_CLERK |
| Davies | ST_CLERK |
| Matos  | ST_CLERK |
| Vargas | ST_CLERK |
+--------+----------+
4 rows in set (0.01 sec)

mysql> Select last_name Name, Job_id, employee_id Id
    -> From employees
    -> where job_id = (Select job_id
    ->                 from employees
    ->                 where employee_id = 141);
+--------+----------+-----+
| Name   | Job_id   | Id  |
+--------+----------+-----+
| Rajs   | ST_CLERK | 141 |
| Davies | ST_CLERK | 142 |
| Matos  | ST_CLERK | 143 |
| Vargas | ST_CLERK | 144 |
```

```
+--------+----------+-----+
4 rows in set (0.00 sec)

Final Answer

mysql> Select last_name Name, Job_id, employee_id Id
    -> From employees
    -> where job_id = (Select job_id
    ->                 from employees
    ->                 where employee_id = 141)
    -> AND Employee_id <> 141;
+--------+----------+-----+
| Name   | Job_id   | Id  |
+--------+----------+-----+
| Davies | ST_CLERK | 142 |
| Matos  | ST_CLERK | 143 |
| Vargas | ST_CLERK | 144 |
+--------+----------+-----+
3 rows in set (0.06 sec)


Q52. Display the last name and salary of every employee that reports
to King.


Step 1.

mysql> Select employee_id
    -> from employees
    -> where last_name = 'King';
+-------------+
| employee_id |
+-------------+
|         100 |
+-------------+
1 row in set (0.02 sec)

Final Answer

mysql> Select last_name Name, Salary, Manager_Id Manager
    -> From employees
    -> where manager_id = (Select employee_id
    ->                     from employees
    ->                     where last_name = 'King');
+-----------+----------+---------+
| Name      | Salary   | Manager |
+-----------+----------+---------+
| Kochhar   | 17000.00 |     100 |
| Mourgos   |  5800.00 |     100 |
| Zlotkey   | 10500.00 |     100 |
```

```
| Hartstein | 13000.00 |     100 |
+-----------+----------+---------+
4 rows in set (0.02 sec)
```

~~~Q53. Display the department number, employee last name, and job id of every employee in the Executive department.

```
mysql> desc departments;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| Department_Id   | decimal(4,0) | NO   | PRI | NULL    |       |
| Department_Name | varchar(30)  | NO   |     | NULL    |       |
| Manager_Id      | decimal(6,0) | YES  |     | NULL    |       |
| Location_Id     | decimal(4,0) | YES  | MUL | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
4 rows in set (0.06 sec)
```

Step 1.

```
mysql> Select department_id
    -> from departments
    -> where department_name = 'Executive';
+---------------+
| department_id |
+---------------+
|            90 |
+---------------+
1 row in set (0.03 sec)
```

Final Answer

```
mysql> Select Last_name Name, Job_id Job, Department_id Department
    -> From employees
    -> where department_id = (Select department_id
    ->                        from departments
    ->                        where department_name = 'Executive');
+---------+---------+------------+
| Name    | Job     | Department |
+---------+---------+------------+
| King    | AD_PRES |         90 |
| Kochhar | AD_VP   |         90 |
+---------+---------+------------+
2 rows in set (0.01 sec)
```
~~~

Standard Syntax

```
mysql> Select e.Last_name Name, e.Job_id Job, d.Department_id
Department
    -> From employees e, departments d
    -> Where e.department_id = d.department_id
    ->       AND d.department_name = 'Executive';
+---------+---------+------------+
| Name    | Job     | Department |
+---------+---------+------------+
| King    | AD_PRES |         90 |
| Kochhar | AD_VP   |         90 |
+---------+---------+------------+
2 rows in set (0.02 sec)
```

Syntax 1999

```
mysql> Select e.Last_name Name, e.Job_id Job, d.Department_id
Department
    -> From employees e INNER JOIN departments d
    ->      ON e.department_id = d.department_id
    -> Where d.department_name = 'Executive';
+---------+---------+------------+
| Name    | Job     | Department |
+---------+---------+------------+
| King    | AD_PRES |         90 |
| Kochhar | AD_VP   |         90 |
+---------+---------+------------+

2 rows in set (0.02 sec)
```

Q54. Display the names of employees that do not have any subordinates.

1. See who is a manager

```
mysql> Select manager_id
    -> from employees;
+------------+
| manager_id |
+------------+
|       NULL |
|        100 |
|        102 |
|        103 |
|        103 |
|        100 |
|        124 |
```

```
|        124 |
|        124 |
|        124 |
|        100 |
|        149 |
|        149 |
|        149 |
|        101 |
|        100 |
|        201 |
|        101 |
|        205 |
+------------+
19 rows in set (0.00 sec)

Remove Null values

mysql> Select manager_id
    -> from employees
    -> Where manager_id is not null;
+------------+
| manager_id |
+------------+
|        100 |
|        102 |
|        103 |
|        103 |
|        100 |
|        124 |
|        124 |
|        124 |
|        124 |
|        100 |
|        149 |
|        149 |
|        149 |
|        101 |
|        100 |
|        201 |
|        101 |
|        205 |
+------------+
18 rows in set (0.00 sec)

mysql> Select last_name Name
    -> from employees
    -> where employee_id NOT IN (Select manager_id
    ->                           from employees
    ->                           Where manager_id is not null);
+---------+
```

```
| Name    |
+---------+
| Ernst   |
| Lorentz |
| Rajs    |
| Davies  |
| Matos   |
| Vargas  |
| Abel    |
| Taylor  |
| Grant   |
| Whalen  |
| Fay     |
| Gietz   |
+---------+
12 rows in set (0.03 sec)
```

See results if Null values are not removed

```
mysql> Select last_name Name
    -> from employees
    -> where employee_id NOT IN (Select manager_id
    ->                           from employees);
Empty set (0.00 sec)
```

~~*~Q55. Find the last names of employees that earn more than Matos.

Step 1.

```
mysql> Select salary
    -> from employees
    -> where last_name = 'Matos';
+---------+
| salary  |
+---------+
| 2600.00 |
+---------+
1 row in set (0.00 sec)
```

Final Answer

```
mysql> Select last_name Name
    -> from employees
    -> where salary >  (Select salary
    ->                  from employees
```

```
    ->                  where last_name = 'Matos');
+-----------+
| Name      |
+-----------+
| King      |
| Kochhar   |
| Hunold    |
| Ernst     |
| Lorentz   |
| Mourgos   |
| Rajs      |
| Davies    |
| Zlotkey   |
| Abel      |
| Taylor    |
| Grant     |
| Whalen    |
| Hartstein |
| Fay       |
| Higgins   |
| Gietz     |
+-----------+
17 rows in set (0.00 sec)

b. Standard syntax – Cartesian product

mysql> Select a.last_name Name
    -> from employees a, employees b
    -> where a.salary >  b.salary AND
    ->       a.last_name <> ‘Matos’ AND
    ->       b.last_name = 'Matos');
+-----------+
| Name      |
+-----------+
| King      |
| Kochhar   |
| Hunold    |
| Ernst     |
| Lorentz   |
| Mourgos   |
| Rajs      |
| Davies    |
| Zlotkey   |
| Abel      |
| Taylor    |
| Grant     |
| Whalen    |
| Hartstein |
| Fay       |
| Higgins   |
```

```
| Gietz     |
+-----------+
17 rows in set (0.00 sec)



mysql> Select salary
    -> from employees
    -> where job_id = 'SA_REP';
+----------+
| salary   |
+----------+
| 11000.00 |
|  8600.00 |
|  7000.00 |
+----------+
3 rows in set (0.00 sec)
```

Q56. Display the last name, salary, and job id of all employees that their salary is less than any of the salaries of employees with job id SA_REP.

```
mysql> Select last_name Name, salary, job_id
    -> From employees
    -> where salary < ANY  (Select salary
    ->                      from employees
    ->                      where job_id = 'SA_REP');
+---------+----------+------------+
| Name    | salary   | job_id     |
+---------+----------+------------+
| Hunold  |  9000.00 | IT_PROG    |
| Ernst   |  6000.00 | IT_PROG    |
| Lorentz |  4200.00 | IT_PROG    |
| Mourgos |  5800.00 | ST_MAN     |
| Rajs    |  3500.00 | ST_CLERK   |
| Davies  |  3100.00 | ST_CLERK   |
| Matos   |  2600.00 | ST_CLERK   |
| Vargas  |  2500.00 | ST_CLERK   |
| Zlotkey | 10500.00 | SA_MAN     |
| Taylor  |  8600.00 | SA_REP     |
| Grant   |  7000.00 | SA_REP     |
| Whalen  |  4400.00 | AD_ASST    |
| Fay     |  6000.00 | MK_REP     |
| Gietz   |  8300.00 | AC_ACCOUNT |
+---------+----------+------------+
14 rows in set (0.03 sec)
```

Final Answer

```
mysql> Select last_name Name, salary, job_id
    -> From employees
    -> where salary < ANY  (Select salary
    ->                      from employees
    ->                      where job_id = 'SA_REP')
    -> AND job_id <> 'SA_REP';
+---------+----------+------------+
| Name    | salary   | job_id     |
+---------+----------+------------+
| Hunold  |  9000.00 | IT_PROG    |
| Ernst   |  6000.00 | IT_PROG    |
| Lorentz |  4200.00 | IT_PROG    |
| Mourgos |  5800.00 | ST_MAN     |
| Rajs    |  3500.00 | ST_CLERK   |
| Davies  |  3100.00 | ST_CLERK   |
| Matos   |  2600.00 | ST_CLERK   |
| Vargas  |  2500.00 | ST_CLERK   |
| Zlotkey | 10500.00 | SA_MAN     |
| Whalen  |  4400.00 | AD_ASST    |
| Fay     |  6000.00 | MK_REP     |
| Gietz   |  8300.00 | AC_ACCOUNT |
+---------+----------+------------+
12 rows in set (0.00 sec)
```

~~~Q57. Display the names of employees that are managers.

Step 1.

```
mysql> Select manager_id
    -> From employees
    -> where manager_id IS NOT NULL;
+------------+
| manager_id |
+------------+
|        100 |
|        102 |
|        103 |
|        103 |
|        100 |
|        124 |
|        124 |
|        124 |
|        124 |
|        100 |
|        149 |
|        149 |
|        149 |
|        101 |
```
~~~

```
|        100 |
|        201 |
|        101 |
|        205 |
+------------+
18 rows in set (0.00 sec)
```

Remove duplications

```
mysql> Select distinct manager_id
    -> From employees
    -> where manager_id IS NOT NULL;
+------------+
| manager_id |
+------------+
|        100 |
|        102 |
|        103 |
|        124 |
|        149 |
|        101 |
|        201 |
|        205 |
+------------+
8 rows in set (0.02 sec)
```

Final Answer.

```
mysql> Select last_name "Manager Name"
    -> from employees
    -> where employee_id IN (Select distinct manager_id
    ->                       From employees
    ->                       where manager_id IS NOT NULL);
+--------------+
| Manager Name |
+--------------+
| King         |
| Hunold       |
| Mourgos      |
| Zlotkey      |
| Kochhar      |
| Hartstein    |
| Higgins      |
+--------------+
7 rows in set (0.00 sec)
```

~~~Q58. How many employees work for the Marketing department?
~~~

```
mysql> Select count(employee_id) “Number of Employees”
    -> from employees
    -> where department_id = (Select department_id
    ->                        from departments
    ->                        Where Department_name = ‘Executive’);
```

Q59. Display the country name where Matos works.

Step 1.

```
mysql> Select department_id
    -> from employees
    -> Where last_name = 'Matos';
+---------------+
| department_id |
+---------------+
|            50 |
+---------------+
1 row in set (0.00 sec)
```

Step 2.

```
mysql> Select location_id
    -> from departments
    -> where department_id = (Select department_id
    ->                        from employees
    ->                        Where last_name = 'Matos');
+-------------+
| location_id |
+-------------+
|        1500 |
+-------------+
1 row in set (0.00 sec)
```

Step 3. Final Answer

```
mysql> Select country_name Country
    -> from countries
    -> where country_id = (Select country_id
    ->                     From locations
    ->                     where location_id = (Select location_id
    ->                                          from departments
    ->                                          where department_id =
(Select department_id
    ->
```

```
from employees
    ->
Where last_name = 'Matos')));
+-------------------------+
| Country                 |
+-------------------------+
| United States of America |
+-------------------------+
1 row in set (0.05 sec)
```

Q60. Display the names and id of employees that held previous positions in the company.

Step 1.

```
mysql> Select employee_id
    -> from job_history;
+-------------+
| employee_id |
+-------------+
|         200 |
|         102 |
|         101 |
|         101 |
|         201 |
|         114 |
|         122 |
|         200 |
|         176 |
|         176 |
+-------------+
10 rows in set (0.02 sec)
```

Remove duplications

```
mysql> Select distinct employee_id
    -> from job_history;
+-------------+
| employee_id |
+-------------+
|         200 |
|         102 |
|         101 |
|         201 |
|         114 |
|         122 |
|         176 |
+-------------+
```

```
7 rows in set (0.00 sec)


Final Answer.

mysql> Select last_name Name, employee_id Id
    -> from employees
    -> where employee_id IN (Select distinct employee_id
    ->                       from job_history);
+-----------+-----+
| Name      | Id  |
+-----------+-----+
| Whalen    | 200 |
| Kochhar   | 101 |
| Hartstein | 201 |
| Taylor    | 176 |
+-----------+-----+
4 rows in set (0.00 sec)

mysql> exit;
- - - - - - - - - - - - - - -  End of file  - - - - - - - - - - - - - - -
- - - - - -
```