6:11 PM 2018-02-05

Week 4

Q40. Find last name and first name of those employees whose last names start with the letter k.

```
Select last_name, first_name
from employees
where LEFT(last_name,1) =  'k';

Select last_name, first_name
from employees
Where Last_name LIKE 'k%';
```

Q41. Find last name and first name of those employees whose last name's 3 characters are "ing".

```
Select last_name, first_name
from employees
where RIGHT(last_name,3) = 'ing';


Select last_name, first_name
from employees
Where last_name LIKE '%ing';
```

Q42. Find last name and first name of those employees whose second letter of their last name is the letter o.

```
Select last_name, first_name
from employees
Where SUBSTR(last_name,2,1) = 'o';


Select last_name, first_name
from employees
Where SUBSTRING(last_name,2,1) = 'o';

Select last_name, first_name
from employees
Where last_name LIKE '_o%';
```

OUTER JOINS

Q43. Display the names of employees that work for a department and those departments that do not have any employees assigned to.

```
mysql> Select e.last_name, d.department_name "Works for"
    -> from employees e RIGHT OUTER JOIN departments d
    ->      ON e.department_id = d.department_id
    -> order by e.last_name;
+-----------+----------------+
| last_name | Works for      |
+-----------+----------------+
| NULL      | Contracting    | <----
| Abel      | Sales          |
| Davies    | Shipping       |
| Ernst     | IT             |
| Fay       | Marketing      |
| Gietz     | Accounting     |
| Hartstein | Marketing      |
| Higgins   | Accounting     |
| Hunold    | IT             |
| King      | Executive      |
| Kochhar   | Executive      |
| Lorentz   | IT             |
| Matos     | Shipping       |
| Mourgos   | Shipping       |
| Rajs      | Shipping       |
| Taylor    | Sales          |
| Vargas    | Shipping       |
| Whalen    | Administration |
| Zlotkey   | Sales          |
+-----------+----------------+
19 rows in set (0.00 sec)
```

Q44. Display the employees that work for a department a those employees that are not assigned to any department.

```
mysql> Select e.last_name, d.department_name "Works for"
    -> from employees e LEFT OUTER JOIN departments d
    ->      ON e.department_id = d.department_id
    -> Order by d.department_name;
+-----------+----------------+
| last_name | Works for      |
+-----------+----------------+
| Grant     | NULL           | <-----
| Gietz     | Accounting     |
| Higgins   | Accounting     |
```

```
| Whalen    | Administration |
| King      | Executive      |
| Kochhar   | Executive      |
| Ernst     | IT             |
| Hunold    | IT             |
| Lorentz   | IT             |
| Fay       | Marketing      |
| Hartstein | Marketing      |
| Taylor    | Sales          |
| Abel      | Sales          |
| Zlotkey   | Sales          |
| Rajs      | Shipping       |
| Vargas    | Shipping       |
| Mourgos   | Shipping       |
| Matos     | Shipping       |
| Davies    | Shipping       |
+-----------+----------------+
19 rows in set (0.00 sec)

____
NON Equi joins
____

Q45. Find the grade level corresponding to the salary of each
employee.
Display last name, salary and grade level.

Standard Syntax

mysql> Select e.last_name Name, e.salary Salary, jb.grade_level
"Grade"
    -> from employees e, job_grades jb
    -> where e.salary BETWEEN jb.lowest_sal AND jb.highest_sal
    -> Order by 3;
+-----------+----------+-------+
| Name      | Salary   | Grade |
+-----------+----------+-------+
| Matos     |  2600.00 | A     |
| Vargas    |  2500.00 | A     |
| Lorentz   |  4200.00 | B     |
| Davies    |  3100.00 | B     |
| Mourgos   |  5800.00 | B     |
| Rajs      |  3500.00 | B     |
| Whalen    |  4400.00 | B     |
| Taylor    |  8600.00 | C     |
| Hunold    |  9000.00 | C     |
| Gietz     |  8300.00 | C     |
| Grant     |  7000.00 | C     |
| Fay       |  6000.00 | C     |
| Ernst     |  6000.00 | C     |
```

```
| Hartstein | 13000.00 | D     |
| Zlotkey   | 10500.00 | D     |
| Abel      | 11000.00 | D     |
| Higgins   | 12000.00 | D     |
| King      | 24000.00 | E     |
| Kochhar   | 17000.00 | E     |
+-----------+----------+-------+
19 rows in set (0.05 sec)

Syntax 1999

mysql> Select e.last_name Name, e.salary Salary, jb.grade_level
"Grade"
    -> from employees e INNER JOIN  job_grades jb
    ->       ON  e.salary BETWEEN jb.lowest_sal AND jb.highest_sal
    -> Order by 3;
+-----------+----------+-------+
| Name      | Salary   | Grade |
+-----------+----------+-------+
| Matos     |  2600.00 | A     |
| Vargas    |  2500.00 | A     |
| Lorentz   |  4200.00 | B     |
| Davies    |  3100.00 | B     |
| Mourgos   |  5800.00 | B     |
| Rajs      |  3500.00 | B     |
| Whalen    |  4400.00 | B     |
| Taylor    |  8600.00 | C     |
| Hunold    |  9000.00 | C     |
| Gietz     |  8300.00 | C     |
| Grant     |  7000.00 | C     |
| Fay       |  6000.00 | C     |
| Ernst     |  6000.00 | C     |
| Hartstein | 13000.00 | D     |
| Zlotkey   | 10500.00 | D     |
| Abel      | 11000.00 | D     |
| Higgins   | 12000.00 | D     |
| King      | 24000.00 | E     |
| Kochhar   | 17000.00 | E     |
+-----------+----------+-------+
19 rows in set (0.00 sec)
```

Q46. Display employee name, department name and city where the department name is located.

```
mysql> desc employees;
+---------------+-------------+------+-----+---------+-------+
```

```
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| Employee_id    | decimal(6,0) | NO   | PRI | NULL    |       |
| First_Name     | varchar(20)  | YES  |     | NULL    |       |
| Last_Name      | varchar(25)  | NO   |     | NULL    |       |
| Email          | varchar(20)  | YES  |     | NULL    |       |
| Phone_Number   | varchar(20)  | YES  |     | NULL    |       |
| Hire_Date      | date         | NO   |     | NULL    |       |
| Job_Id         | varchar(10)  | YES  |     | NULL    |       |
| Salary         | decimal(8,2) | YES  |     | NULL    |       |
| Commission_Pct | decimal(2,2) | YES  |     | NULL    |       |
| Manager_Id     | decimal(6,0) | YES  |     | NULL    |       |
| Department_Id  | decimal(4,0) | YES  |     | NULL    |       |<-----
+----------------+--------------+------+-----+---------+-------+
11 rows in set (0.02 sec)

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  |     | NULL    |       |
<-----
+-----------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> desc locations;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| Location_Id    | decimal(4,0) | NO   | PRI | NULL    |       |<-----
| Street_Address | varchar(40)  | YES  |     | NULL    |       |
| Postal_Code    | varchar(12)  | YES  |     | NULL    |       |
| City           | varchar(30)  | NO   |     | NULL    |       |
| State_Province | varchar(25)  | YES  |     | NULL    |       |
| Country_Id     | char(2)      | YES  |     | NULL    |       |
+----------------+--------------+------+-----+---------+-------+
6 rows in set (0.02 sec)

mysql> Select e.employee_id ID, d.department_name Department, l.city
City
    -> from employees e JOIN departments d
    ->     ON e.department_id = d.department_id
    ->    JOIN Locations l
    ->     ON d.location_id = l.location_id
    -> Order by 3;
+-----+----------------+--------------------+
```

```
| ID  | Department     | City                |
+-----+----------------+---------------------+
| 176 | Sales          | Oxford              |
| 174 | Sales          | Oxford              |
| 149 | Sales          | Oxford              |
| 200 | Administration | Seattle             |
| 101 | Executive      | Seattle             |
| 206 | Accounting     | Seattle             |
| 100 | Executive      | Seattle             |
| 205 | Accounting     | Seattle             |
| 143 | Shipping       | South San Francisco |
| 142 | Shipping       | South San Francisco |
| 141 | Shipping       | South San Francisco |
| 124 | Shipping       | South San Francisco |
| 144 | Shipping       | South San Francisco |
| 107 | IT             | Southlake           |
| 104 | IT             | Southlake           |
| 103 | IT             | Southlake           |
| 202 | Marketing      | Toronto             |
| 201 | Marketing      | Toronto             |
+-----+----------------+---------------------+
18 rows in set (0.02 sec)
```

Standard Syntax

```
mysql> Select e.employee_id ID, d.department_name Department, l.city
City
    -> From employees e, departments d, locations l
    -> Where e.department_id = d.department_id AND d.location_id =
l.location_id;
+-----+----------------+---------------------+
| ID  | Department     | City                |
+-----+----------------+---------------------+
| 103 | IT             | Southlake           |
| 104 | IT             | Southlake           |
| 107 | IT             | Southlake           |
| 124 | Shipping       | South San Francisco |
| 141 | Shipping       | South San Francisco |
| 142 | Shipping       | South San Francisco |
| 143 | Shipping       | South San Francisco |
| 144 | Shipping       | South San Francisco |
| 100 | Executive      | Seattle             |
| 101 | Executive      | Seattle             |
| 200 | Administration | Seattle             |
| 205 | Accounting     | Seattle             |
| 206 | Accounting     | Seattle             |
| 201 | Marketing      | Toronto             |
| 202 | Marketing      | Toronto             |
```

```
| 149 | Sales          | Oxford              |
| 174 | Sales          | Oxford              |
| 176 | Sales          | Oxford              |
+-----+----------------+---------------------+
18 rows in set (0.00 sec)
```

~~~Q47. Display the name(s) of employees that work in Seattle.

Syntax 1999

```
mysql> Select e.last_name Name
    -> from employees e JOIN departments d
    ->     ON e.department_id = d.department_id
    ->    JOIN Locations l
    ->     ON d.location_id = l.location_id
    -> where l.city = 'Seattle'
    -> Order by 1;
+---------+
| Name    |
+---------+
| Gietz   |
| Higgins |
| King    |
| Kochhar |
| Whalen  |
+---------+
5 rows in set (0.01 sec)
```

Standard Syntax

```
mysql> Select e.last_name Name
    -> from employees e, departments d, Locations l
    -> Where e.department_id = d.department_id AND
    ->       d.location_id = l.location_id
    ->   AND l.city = 'Seattle';

+---------+
| Name    |
+---------+
| Gietz   |
| Higgins |
| King    |
| Kochhar |
| Whalen  |
+---------+
5 rows in set (0.01 sec)
```

Q47a. How many employees work in Seattle?
~~~

Standard Syntax

```
mysql> Select count(e.last_name) "Number of Employees"
    -> from employees e, departments d, Locations l
    -> Where e.department_id = d.department_id AND
    ->       d.location_id = l.location_id
    ->   AND l.city = 'Seattle';

+------+
| Name |
+------+
|    5 |
+------+
1 row in set (0.03 sec)
```

Syntax 1999

```
mysql> Select count(e.last_name) "Number of Employees"
    -> from employees e JOIN departments d
    ->     ON e.department_id = d.department_id
    ->    JOIN Locations l
    ->     ON d.location_id = l.location_id
    -> where l.city = 'Seattle';
+---------------------+
| Number of Employees |
+---------------------+
|                   5 |
+---------------------+
1 row in set (0.00 sec)
```

Q48. Display the country name where Matos works.

```
mysql> desc employees;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| Employee_id    | decimal(6,0) | NO   | PRI | NULL    |       |
| First_Name     | varchar(20)  | YES  |     | NULL    |       |
| Last_Name      | varchar(25)  | NO   |     | NULL    |       |
| Email          | varchar(20)  | YES  |     | NULL    |       |
| Phone_Number   | varchar(20)  | YES  |     | NULL    |       |
| Hire_Date      | date         | NO   |     | NULL    |       |
| Job_Id         | varchar(10)  | YES  |     | NULL    |       |
| Salary         | decimal(8,2) | YES  |     | NULL    |       |
| Commission_Pct | decimal(2,2) | YES  |     | NULL    |       |
```

```
| Manager_Id     | decimal(6,0) | YES  |     | NULL    |       |
| Department_Id  | decimal(4,0) | YES  |     | NULL    |       |
<------
+----------------+--------------+------+-----+---------+-------+
11 rows in set (0.02 sec)

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  |     | NULL    |       |<----
+-----------------+--------------+------+-----+---------+-------+
4 rows in set (0.03 sec)

mysql> desc locations;
+----------------+--------------+------+-----+---------+-------+
| Field          | Type         | Null | Key | Default | Extra |
+----------------+--------------+------+-----+---------+-------+
| Location_Id    | decimal(4,0) | NO   | PRI | NULL    |       |<----
| Street_Address | varchar(40)  | YES  |     | NULL    |       |
| Postal_Code    | varchar(12)  | YES  |     | NULL    |       |
| City           | varchar(30)  | NO   |     | NULL    |       |
| State_Province | varchar(25)  | YES  |     | NULL    |       |
| Country_Id     | char(2)      | YES  |     | NULL    |       |<----
+----------------+--------------+------+-----+---------+-------+
6 rows in set (0.03 sec)

mysql> desc countries;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| Country_Id   | char(2)      | NO   | PRI | NULL    |       |<----
| Country_Name | varchar(40)  | YES  |     | NULL    |       |
| Region_Id    | decimal(2,0) | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
3 rows in set (0.03 sec)

Standard Syntax

mysql> Select c.country_name "Country"
    -> from employees e, Departments d, Locations l, Countries c
    -> Where e.department_id = d.department_id AND
    ->       d.location_id = l.location_id  AND
    ->       l.country_id = c.country_id AND
    ->       e.last_name = 'Matos';
+-------------------------+
| Country                 |
```

```
+--------------------------+
| United States of America |
+--------------------------+
1 row in set (0.02 sec)

Syntax 1999

mysql> Select c.country_name "Country"
    -> from employees e JOIN Departments d
    ->     ON e.department_id = d.department_id
    ->    JOIN Locations l
    ->     ON d.location_id = l.location_id
    ->    JOIN Countries c
    ->     ON l.country_id = c.country_id
    -> Where e.last_name = 'Matos';
+--------------------------+
| Country                  |
+--------------------------+
| United States of America |
+--------------------------+
1 row in set (0.02 sec)


- - - - Note - - - - - -  - - - - - -
If

n tables to join
n-1 conditions

- - - - -- - - - - - - -- - -


~~~Q49. Display the names of employees working in Canada

Standard Syntax

mysql> Select e.last_name Name
    -> From employees e, departments d, locations l, countries c
    -> Where e.department_id = d.department_id
    ->       AND d.location_id = l.location_id
    ->       AND l.country_id = c.country_id
    ->   AND l.country_name = 'Canada';

+-----------+
| Name      |
+-----------+
| Hartstein |
| Fay       |
+-----------+
2 rows in set (0.00 sec)
```

Syntax 1999

```
mysql> Select e.last_name Name
    -> From employees e JOIN departments d
    ->      ON e.department_id = d.department_id
    ->    JOIN locations l
    ->      ON d.location_id = l.location_id
    ->    JOIN countries c
    ->       AND l.country_id = c.country_id
    ->   AND c.country_name = 'Canada';
+-----------+
| Name      |
+-----------+
| Hartstein |
| Fay       |
+-----------+
2 rows in set (0.00 sec)
```

Q50. How many employees work in each country?

Standard Syntax

```
mysql> Select c.country_name Country, count(e.last_name) "Number of
Employees"
    -> From employees e, Departments d, locations l, countries c
    -> Where  e.department_id = d.department_id AND
    ->        d.location_id = l.location_id  AND
    ->        l.country_id = c.country_id
    -> Group by c.country_name;
+-------------------------+--------------------+
| Country                 | Number of Employees |
+-------------------------+--------------------+
| Canada                  |                  2 |
| United Kingdom          |                  3 |
| United States of America |                 13 |
+-------------------------+--------------------+
3 rows in set (0.01 sec)
```

Syntax 1999

```
mysql> Select c.country_name Country, count(e.last_name) "Number of
Employees"
    -> From employees e INNER JOIN Departments d
    ->      ON e.department_id = d.department_id
    -> JOIN locations l
```

```
    ->  ON d.location_id = l.location_id
    -> JOIN countries c
    ->  ON l.country_id = c.country_id
    -> Group by c.country_name;
+-------------------------+---------------------+
| Country                 | Number of Employees |
+-------------------------+---------------------+
| Canada                  |                   2 |
| United Kingdom          |                   3 |
| United States of America |                  13 |
+-------------------------+---------------------+
3 rows in set (0.01 sec)
```

Q51. Find the employees who had previous jobs in the company. Display last Name, job title(s), starting date and ending date.

```
mysql>
mysql> desc job_history;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| Employee_Id   | decimal(6,0) | NO   |     | NULL    |       |
| Start_Date    | date        | NO   |     | NULL    |       |
| End_Date      | date        | NO   |     | NULL    |       |
| Job_Id        | varchar(10)  | NO   |     | NULL    |       |
| Department_Id | decimal(4,0) | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
5 rows in set (0.06 sec)

mysql> desc employees;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| Employee_id    | decimal(6,0) | NO   | PRI | NULL    |       |
| First_Name     | varchar(20)  | YES  |     | NULL    |       |
| Last_Name      | varchar(25)  | NO   |     | NULL    |       |
| Email          | varchar(20)  | YES  |     | NULL    |       |
| Phone_Number   | varchar(20)  | YES  |     | NULL    |       |
| Hire_Date      | date        | NO   |     | NULL    |       |
| Job_Id         | varchar(10)  | YES  |     | NULL    |       |
| Salary         | decimal(8,2) | YES  |     | NULL    |       |
| Commission_Pct | decimal(2,2) | YES  |     | NULL    |       |
| Manager_Id     | decimal(6,0) | YES  |     | NULL    |       |
| Department_Id  | decimal(4,0) | YES  |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
11 rows in set (0.00 sec)

mysql> desc jobs;
```

```
+------------+--------------+------+-----+---------+-------+
| Field      | Type         | Null | Key | Default | Extra |
+------------+--------------+------+-----+---------+-------+
| Job_Id     | varchar(10)  | NO   |     | NULL    |       |
| Job_Title  | varchar(35)  | NO   |     | NULL    |       |
| Min_Salary | decimal(6,0) | YES  |     | NULL    |       |
| Max_Salary | decimal(6,0) | YES  |     | NULL    |       |
+------------+--------------+------+-----+---------+-------+
4 rows in set (0.03 sec)
```

Standard Syntax

```
mysql> Select e.last_name Name, j.job_title Title, jh.start_date
"Start Date", jh.end_date "End Date"
    -> from employees e, job_history jh, jobs j
    -> Where e.employee_id = jh.employee_id AND jh.job_id = j.job_id;
+-----------+--------------------------+------------+------------+
| Name      | Title                    | Start Date | End Date   |
+-----------+--------------------------+------------+------------+
| Whalen    | Administration Assistant | 1987-09-17 | 1993-06-17 |
| Kochhar   | Accounting Manager       | 1993-10-28 | 1997-03-15 |
| Whalen    | Public Accountant        | 1994-07-01 | 1998-12-31 |
| Kochhar   | Public Accountant        | 1989-09-21 | 1993-10-27 |
| Taylor    | Sales Manager            | 1999-01-01 | 1999-12-31 |
| Taylor    | Sales Representative     | 1998-03-24 | 1998-12-31 |
| Hartstein | Marketing Representative | 1996-02-17 | 1999-12-19 |
+-----------+--------------------------+------------+------------+
7 rows in set (0.03 sec)
```

Syntax 1999

```
mysql> Select e.last_name Name, j.job_title Title, jh.start_date
"Start Date", jh.end_date "End Date"
    -> from employees e JOIN job_history jh
    ->      ON e.employee_id = jh.employee_id
    ->    JOIN jobs j
    ->      ON jh.job_id = j.job_id;
+-----------+--------------------------+------------+------------+
| Name      | Title                    | Start Date | End Date   |
+-----------+--------------------------+------------+------------+
| Whalen    | Administration Assistant | 1987-09-17 | 1993-06-17 |
| Kochhar   | Accounting Manager       | 1993-10-28 | 1997-03-15 |
| Whalen    | Public Accountant        | 1994-07-01 | 1998-12-31 |
| Kochhar   | Public Accountant        | 1989-09-21 | 1993-10-27 |
| Taylor    | Sales Manager            | 1999-01-01 | 1999-12-31 |
| Taylor    | Sales Representative     | 1998-03-24 | 1998-12-31 |
| Hartstein | Marketing Representative | 1996-02-17 | 1999-12-19 |
+-----------+--------------------------+------------+------------+
```

```
7 rows in set (0.03 sec)


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