Homework 4

FROM: Jonas Zhonghan Xie
TO: Sarah Dimatto
SUBJECT: RE: Help with the party I am putting together

Hi Sarah,

Hope you are doing great! It was nice to see you at the party last weekend. I had a really great time there. I am glad to look into the data and answer your questions.

You can find my SQL queries below. Please disregard the `sql_exc()` function. It is a function that I created to execute SQL queries and format the output in a more readable way.

Part 1

1. There are 3 recipe titles that are introduced in the Vegetables and Salad classes: Garlic Green Beans, Asparagus, and Mike's Summer Salad. The SQL query is as follows:

```
mysql> SELECT r.RecipeTitle, r.RecipeClassID
    -> FROM Recipes r
    -> JOIN Recipe_Classes rc ON r.RecipeClassID = rc.RecipeClassID
    -> WHERE rc.RecipeClassDescription IN ('Vegetable', 'Salad');
+--------------------+---------------+
| RecipeTitle        | RecipeClassID |
+--------------------+---------------+
| Garlic Green Beans |             2 |
| Mike's Summer Salad |             4 |
| Asparagus          |             2 |
+--------------------+---------------+
3 rows in set (0.24 sec)
```

2. There are 2 recipes that contain seafoods: Huachinango Veracruzana and Salmon Filets in Parchment Paper.

```
mysql> SELECT r.RecipeID, r.RecipeTitle
    -> FROM Recipes r
    -> JOIN Recipe_Ingredients ri ON r.RecipeID=ri.RecipeID
    -> JOIN Ingredients i on ri.IngredientID=i.IngredientID
    -> JOIN Ingredient_Classes ic ON i.IngredientClassID=ic.IngredientClassID
    -> WHERE ic.IngredientClassDescription = 'Seafood'
    -> ;
+----------+-----------------------------------------------------+
| RecipeID | RecipeTitle                                         |
+----------+-----------------------------------------------------+
|       14 | Salmon Filets in Parchment Paper                    |
|       11 | Huachinango Veracruzana (Red Snapper, Veracruz style) |
+----------+-----------------------------------------------------+
2 rows in set (0.20 sec)
```

Part2

1. The names of employees who work in Operations department are listed below:

```
mysql> SELECT e.emp_id, e.fname, e.lname, e.dept_id
    -> FROM employee e
    -> JOIN department d ON e.dept_id=d.dept_id
    -> WHERE d.name= 'Operations'
    -> ;
+--------+----------+-----------+---------+
| emp_id | fname    | lname     | dept_id |
+--------+----------+-----------+---------+
|      4 | Susan    | Hawthorne |       1 |
|      6 | Helen    | Fleming   |       1 |
|      7 | Chris    | Tucker    |       1 |
|      8 | Sarah    | Parker    |       1 |
|      9 | Jane     | Grossman  |       1 |
|     10 | Paula    | Roberts   |       1 |
|     11 | Thomas   | Ziegler   |       1 |
|     12 | Samantha | Jameson   |       1 |
|     13 | John     | Blake     |       1 |
|     14 | Cindy    | Mason     |       1 |
|     15 | Frank    | Portman   |       1 |
|     16 | Theresa  | Markham   |       1 |
|     17 | Beth     | Fowler    |       1 |
|     18 | Rick     | Tulman    |       1 |
+--------+----------+-----------+---------+
14 rows in set (0.15 sec)
```

2. Sure! The open dates of the accounts that Paula opened and the address of the customers are listed below:

```
mysql> SELECT DISTINCT a.account_id, a.open_date, c.cust_id, c.address
    -> FROM account a
    -> JOIN employee e ON a.open_emp_id=e.emp_id
    -> JOIN customer c ON a.cust_id=c.cust_id
    -> WHERE e.fname='Paula' AND e.lname='Roberts';
+------------+------------+---------+--------------------+
| account_id | open_date  | cust_id | address            |
+------------+------------+---------+--------------------+
|          1 | 2000-01-15 |       1 | 47 Mockingbird Ln  |
|          2 | 2000-01-15 |       1 | 47 Mockingbird Ln  |
|          3 | 2004-06-30 |       1 | 47 Mockingbird Ln  |
|          4 | 2001-03-12 |       2 | 372 Clearwater Blvd |
|          5 | 2001-03-12 |       2 | 372 Clearwater Blvd |
|         17 | 2004-01-12 |       7 | 29 Admiral Ln      |
|         27 | 2004-03-22 |      11 | 287A Corporate Ave |
+------------+------------+---------+--------------------+
7 rows in set (0.05 sec)
```

3. The employees and the ID of their managers are listed below. The manager ID is `superior_emp_id` in the table below:

```
mysql> SELECT e.emp_id, e.fname, e.lname, e.superior_emp_id FROM employee e;
+--------+----------+-----------+-----------------+
| emp_id | fname    | lname     | superior_emp_id |
+--------+----------+-----------+-----------------+
|      1 | Michael  | Smith     |            NULL |
|      2 | Susan    | Barker    |               1 |
|      3 | Robert   | Tyler     |               1 |
|      4 | Susan    | Hawthorne |               3 |
|      5 | John     | Gooding   |               4 |
|      6 | Helen    | Fleming   |               4 |
|      7 | Chris    | Tucker    |               6 |
|      8 | Sarah    | Parker    |               6 |
|      9 | Jane     | Grossman  |               6 |
|     10 | Paula    | Roberts   |               4 |
|     11 | Thomas   | Ziegler   |              10 |
|     12 | Samantha | Jameson   |              10 |
|     13 | John     | Blake     |               4 |
|     14 | Cindy    | Mason     |              13 |
|     15 | Frank    | Portman   |              13 |
|     16 | Theresa  | Markham   |               4 |
|     17 | Beth     | Fowler    |              16 |
|     18 | Rick     | Tulman    |              16 |
+--------+----------+-----------+-----------------+
18 rows in set (0.06 sec)
```

4. The accounts that are not closed and their available balances and associated business names are listed below:

```
mysql> SELECT a.account_id, a.avail_balance, a.cust_id, c.state, b.name AS business_name
    -> FROM account a
    -> LEFT JOIN customer c ON a.cust_id=c.cust_id
    -> LEFT JOIN business b ON c.cust_id=b.cust_id
    -> WHERE a.status!='CLOSED'
    -> ;
+------------+---------------+---------+-------+------------------------+
| account_id | avail_balance | cust_id | state | business_name          |
+------------+---------------+---------+-------+------------------------+
|          1 |       1057.75 |       1 | MA    | NULL                   |
|          2 |        500.00 |       1 | MA    | NULL                   |
|          3 |       3000.00 |       1 | MA    | NULL                   |
|          4 |       2258.02 |       2 | MA    | NULL                   |
|          5 |        200.00 |       2 | MA    | NULL                   |
|          7 |       1057.75 |       3 | MA    | NULL                   |
|          8 |       2212.50 |       3 | MA    | NULL                   |
|         10 |        534.12 |       4 | MA    | NULL                   |
|         11 |        767.77 |       4 | MA    | NULL                   |
|         12 |       5487.09 |       4 | MA    | NULL                   |
|         13 |       2237.97 |       5 | NH    | NULL                   |
|         14 |        122.37 |       6 | MA    | NULL                   |
|         15 |      10000.00 |       6 | MA    | NULL                   |
|         17 |       5000.00 |       7 | MA    | NULL                   |
|         18 |       3487.19 |       8 | NH    | NULL                   |
|         19 |        387.99 |       8 | NH    | NULL                   |
|         21 |        125.67 |       9 | MA    | NULL                   |
|         22 |       9345.55 |       9 | MA    | NULL                   |
|         23 |       1500.00 |       9 | MA    | NULL                   |
|         24 |      23575.12 |      10 | NH    | Chilton Engineering    |
|         25 |          0.00 |      10 | NH    | Chilton Engineering    |
|         27 |       9345.55 |      11 | MA    | Northeast Cooling Inc. |
|         28 |      38552.05 |      12 | NH    | Superior Auto Body     |
|         29 |      50000.00 |      13 | MA    | AAA Insurance Inc.     |
+------------+---------------+---------+-------+------------------------+
24 rows in set (0.09 sec)
```

5. The employees who are assigned to the branch at 422 Maple St. are listed below:

```
mysql> SELECT e.emp_id, e.fname, e.lname, b.address
    -> FROM employee e
    -> JOIN branch b ON e.assigned_branch_id = b.branch_id
    -> WHERE b.address = '422 Maple St.';
+--------+----------+---------+---------------+
| emp_id | fname    | lname   | address       |
+--------+----------+---------+---------------+
|     10 | Paula    | Roberts | 422 Maple St. |
|     11 | Thomas   | Ziegler | 422 Maple St. |
|     12 | Samantha | Jameson | 422 Maple St. |
+--------+----------+---------+---------------+
3 rows in set (0.08 sec)
```

Part 3:

1. I picked 5 random cities that have a population between 13000 and 500000 and are not located in North America.

```
mysql> SELECT c.Name AS city_name, c.CountryCode, c.Population, co.Continent
    -> FROM city c
    -> JOIN country co ON c.CountryCode=co.Code
    -> WHERE (c.Population > 13000 AND c.Population < 500000) AND co.Continent!='North America'
    -> ORDER BY RAND()
    -> LIMIT 5;
+--------------+-------------+------------+-----------+
| city_name    | CountryCode | Population | Continent |
+--------------+-------------+------------+-----------+
| Purwakarta   | IDN         |      95900 | Asia      |
| Nou?dhibou   | MRT         |      97600 | Africa    |
| Ternopil     | UKR         |     236000 | Europe    |
| Wolverhampton | GBR        |     242000 | Europe    |
| Irbil        | IRQ         |     485968 | Asia      |
+--------------+-------------+------------+-----------+
5 rows in set (0.25 sec)
```

2. There are 518 cities are in countries that are under constitutional monarchies.

```
mysql> SELECT COUNT(1) AS count_of_cities FROM city c
    -> JOIN country co ON c.CountryCode = co.Code
    -> WHERE co.GovernmentForm='Constitutional Monarchy';
+-----------------+
| count_of_cities |
+-----------------+
|             518 |
+-----------------+
1 row in set (0.05 sec)
```

3. I picked another 5 random cities that fulfill your requirement: population between 13,000 and 500,000, have an official language but not English, not a republic.

```
mysql> SELECT c.Name, c.CountryCode, c.Population, co.GovernmentForm, cl.Language As Official_Language
    -> FROM city c
    -> JOIN country co ON c.CountryCode=co.Code
    -> JOIN countrylanguage cl ON co.Code=cl.CountryCode
    -> WHERE co.GovernmentForm NOT LIKE '%Republic%' AND
    -> cl.IsOfficial='T' AND cl.Language!='English' AND
    -> c.Population > 13000 AND c.Population < 500000
    -> ORDER BY RAND()
    -> LIMIT 5
    -> ;
+---------------+-------------+------------+-----------------------+-------------------+
| Name          | CountryCode | Population | GovernmentForm        | Official_Language |
+---------------+-------------+------------+-----------------------+-------------------+
| Beni-Mellal   | MAR         |     140212 | Constitutional Monarchy | Arabic          |
| Shimonoseki   | JPN         |     257263 | Constitutional Monarchy | Japanese        |
| Nuku?alofa    | TON         |      22400 | Monarchy              | Tongan            |
| Mazar-e-Sharif | AFG        |     127800 | Islamic Emirate       | Pashto            |
| Móstoles      | ESP         |     195351 | Constitutional Monarchy | Spanish         |
+---------------+-------------+------------+-----------------------+-------------------+
5 rows in set (0.14 sec)
```

Part 4:

1. From Jan 1 1985 to Jan 1 1986, there were 39 employees who had a title of Engineer on the payroll.

```
mysql> SELECT COUNT(1) AS count_of_engineers
    -> FROM salaries s
    -> JOIN employees e ON e.emp_no=s.emp_no
    -> JOIN titles t ON e.emp_no=t.emp_no
    -> WHERE t.title LIKE '%Engineer%' AND
    -> s.from_date BETWEEN '1985-01-01' AND '1986-01-01'
    -> AND s.to_date BETWEEN '1985-01-01' AND '1986-01-01';
+--------------------+
| count_of_engineers |
+--------------------+
|                 39 |
+--------------------+
1 row in set (7.38 sec)
```

2. From 1985 to 1992, there were 2517 employees who had worked in the Operations department.

```
mysql> SELECT COUNT(1) AS count_of_production_employees
    -> FROM dept_emp de
    -> JOIN departments d on de.dept_no = d.dept_no
    -> WHERE d.dept_name = 'Production' AND
    -> de.from_date BETWEEN '1985-01-01' AND '1992-01-01' AND
    -> de.to_date BETWEEN '1985-01-01' AND '1992-01-01';
+-------------------------------+
| count_of_production_employees |
+-------------------------------+
|                          2517 |
+-------------------------------+
1 row in set (1.36 sec)
```

3. I randomly picked 20 current employees with their salaries and titles.

```
mysql> SELECT e.emp_no, e.first_name, e.last_name, s.salary, t.title
    -> FROM employees e
    -> JOIN salaries s ON e.emp_no = s.emp_no
    -> JOIN titles t ON e.emp_no = t.emp_no
    -> WHERE s.to_date = '9999-01-01' AND
    -> t.to_date = '9999-01-01'
    -> ORDER BY RAND()
    -> LIMIT 20
    -> ;
+--------+------------+-----------+--------+-----------------+
| emp_no | first_name | last_name | salary | title           |
+--------+------------+-----------+--------+-----------------+
| 476150 | Niranjan   | Siepmann  |  79728 | Senior Engineer |
| 422841 | Bojan      | Lorch     |  76229 | Senior Engineer |
|  13469 | Yonghoan   | Undy      |  61051 | Engineer        |
| 480457 | Navin      | Varker    |  46253 | Staff           |
| 108184 | Kien       | Merks     |  83179 | Senior Engineer |
| 435848 | Fay        | Swiss     |  88008 | Senior Engineer |
|  61097 | Kwangjo    | Trelles   |  85937 | Senior Engineer |
| 454808 | Youpyo     | Erbe      |  76482 | Staff           |
|  36822 | Subhrajyoti | Schauser  |  56764 | Senior Engineer |
| 427147 | Rosalyn    | Hempstead |  56579 | Senior Staff    |
| 223748 | Uwe        | Knightly  |  79498 | Senior Staff    |
|  12588 | Yagil      | Kenevan   |  62209 | Senior Engineer |
|  19302 | Khue       | Farrar    |  65854 | Senior Engineer |
| 215356 | Along      | Gill      |  72536 | Senior Engineer |
| 445632 | Zhiguo     | Bressoud  |  77972 | Senior Staff    |
| 210231 | Jianhao    | Lorie     |  64726 | Senior Engineer |
| 443836 | Teruyuki   | Swiss     |  55876 | Engineer        |
| 270097 | Eirik      | Malinowski |  58342 | Staff           |
|  25622 | Berthier   | Zirintsis |  83323 | Senior Staff    |
| 412340 | Alain      | Litecky   |  73748 | Senior Engineer |
+--------+------------+-----------+--------+-----------------+
20 rows in set (8.11 sec)
```

I also attach the database diagram to this email. Please let me know if you have any additional questions about the queries above. I am happy to help with you.

Really? I know nothing about the promotion stuff. But sure, let's find a time to have some drinks!

Best,
Jonas