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:

```
sql_exc("""
        SELECT r.RecipeTitle, r.RecipeClassID
        FROM Recipes r
        JOIN Recipe_Classes rc ON r.RecipeClassID = rc.RecipeClassID
        WHERE rc.RecipeClassDescription IN ('Vegetable', 'Salad')
        """, cursor)
```

```
+---------------------+-----------------+
| RecipeTitle         |   RecipeClassID |
|---------------------+-----------------|
| Garlic Green Beans  |               2 |
| Asparagus           |               2 |
| Mike's Summer Salad |               4 |
+---------------------+-----------------+
```

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

```
sql_exc("""
        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'
        LIMIT 50
        """, cursor)
```

```
+------------+-----------------------------------------------------+
|   RecipeID | RecipeTitle                                         |
|------------+-----------------------------------------------------|
|         14 | Salmon Filets in Parchment Paper                    |
|         11 | Huachinango Veracruzana (Red Snapper, Veracruz style) |
+------------+-----------------------------------------------------+
```

Part2

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

```
sql_exc("""
        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'
        """, cursor)
```

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

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

```
sql_exc("""SELECT
            a.account_id,
            a.open_date, e.fname AS emp_fname,
            e.lname AS emp_lname,
            c.address,
            c.city,
            c.state
        FROM account a
        JOIN customer c ON a.cust_id = c.cust_id
        JOIN employee e ON a.open_emp_id = e.emp_id
        WHERE e.fname = 'Paula' AND e.lname = 'Roberts'
        """, cursor)
```

account_id	open_date	emp_fname	emp_lname	address	city	state
1	2000-01-15	Paula	Roberts	47 Mockingbird Ln	Lynnfield	MA
2	2000-01-15	Paula	Roberts	47 Mockingbird Ln	Lynnfield	MA
3	2004-06-30	Paula	Roberts	47 Mockingbird Ln	Lynnfield	MA
4	2001-03-12	Paula	Roberts	372 Clearwater Blvd	Woburn	MA
5	2001-03-12	Paula	Roberts	372 Clearwater Blvd	Woburn	MA
17	2004-01-12	Paula	Roberts	29 Admiral Ln	Wilmington	MA
27	2004-03-22	Paula	Roberts	287A Corporate Ave	Wilmington	MA

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

```
sql_exc("""
        SELECT emp_id, fname, lname, superior_emp_id
        FROM employee WHERE superior_emp_id IS NOT NULL
        """, cursor)
```

emp_id	fname	lname	superior_emp_id
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

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

```
sql_exc("""
        SELECT a.account_id, a.avail_balance, c.state, b.name AS business_name
        FROM account a
        JOIN customer c ON a.cust_id = c.cust_id
        LEFT JOIN business b on a.cust_id = b.cust_id
        WHERE a.close_date IS NULL
        """, cursor)
```

account_id	avail_balance	state	business_name
1	1057.75	MA	
2	500	MA	
3	3000	MA	
4	2258.02	MA	
5	200	MA	
7	1057.75	MA	
8	2212.5	MA	
10	534.12	MA	
11	767.77	MA	
12	5487.09	MA	
13	2237.97	NH	
14	122.37	MA	
15	10000	MA	
17	5000	MA	
18	3487.19	NH	
19	387.99	NH	
21	125.67	MA	
22	9345.55	MA	
23	1500	MA	
24	23575.1	NH	Chilton Engineering
25	0	NH	Chilton Engineering
27	9345.55	MA	Northeast Cooling Inc.
28	38552.1	NH	Superior Auto Body
29	50000	MA	AAA Insurance Inc.

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

```
sql_exc("""
        SELECT e.emp_id, e.fname, e.lname, e.assigned_branch_id
        FROM employee e
        JOIN branch b ON e.assigned_branch_id = b.branch_id
        WHERE b.address = '422 Maple St.'
        """, cursor)
```

```
+----------+----------+---------+----------------------+
|   emp_id | fname    | lname   |   assigned_branch_id |
|----------+----------+---------+----------------------|
|       10 | Paula    | Roberts |                    2 |
|       11 | Thomas   | Ziegler |                    2 |
|       12 | Samantha | Jameson |                    2 |
+----------+----------+---------+----------------------+
```

Part 3:

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

```
sql_exc("""
        SELECT c.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
        """, cursor)
```

```
+-------------+---------------+-------------+-------------+
| Name        | CountryCode   |   Population | Continent   |
|-------------+---------------+-------------+-------------|
| Katsina     | NGA           |       206500 | Africa      |
| Baoding     | CHN           |       483155 | Asia        |
| Guntakal    | IND           |       107592 | Asia        |
| Helsingborg | SWE           |       117737 | Europe      |
| Witbank     | ZAF           |       167183 | Africa      |
+-------------+---------------+-------------+-------------+
```

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

```
sql_exc("""
        SELECT count(*) AS count_of_cities FROM city c
        JOIN country co ON c.CountryCode = co.Code
        WHERE co.GovernmentForm = 'Constitutional Monarchy'
        """,cursor)
```

```
+-------------------+
|   count_of_cities |
|-------------------|
|               518 |
+-------------------+
```

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.

```
sql_exc("""
        SELECT c.Name, c.CountryCode, c.Population, co.GovernmentForm, cl.Language As OfficialLanguage
        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
        """, cursor)
```

```
+-----------+---------------+--------------+-------------------------+--------------------+
| Name      | CountryCode   |   Population | GovernmentForm          | OfficialLanguage   |
|-----------+---------------+--------------+-------------------------+--------------------|
| Songkhla  | THA           |        94900 | Constitutional Monarchy | Thai               |
| Haag      | NLD           |       440900 | Constitutional Monarchy | Dutch              |
| Narashino | JPN           |       152849 | Constitutional Monarchy | Japanese           |
| Herat     | AFG           |       186800 | Islamic Emirate         | Pashto             |
| Hirakata  | JPN           |       403151 | Constitutional Monarchy | Japanese           |
+-----------+---------------+--------------+-------------------------+--------------------+
```

Part 4:

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

```
sql_exc("""
        SELECT COUNT(*) AS count_of_engineers_in_1985
        FROM salaries s
        JOIN employees e ON s.emp_no = e.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'
        """, cursor)
```

```
+------------------------------+
|   count_of_engineers_in_1985 |
|------------------------------|
|                           39 |
+------------------------------+
```

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

```
sql_exc("""
        SELECT COUNT(*) 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'
        """, cursor)
```

```
+---------------------------------+
|   count_of_production_employees |
|---------------------------------|
|                            2517 |
+---------------------------------+
```

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

```
sql_exc("""
        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
        """, cursor)
```

emp_no	first_name	last_name	salary	title
54299	Temple	Lally	73895	Senior Engineer
201509	Ronghao	Speer	45970	Senior Staff
465328	Xianlong	Cesareni	77990	Senior Engineer
203816	Avishai	Akazan	59438	Engineer
43326	Christfried	Wursthorn	82848	Senior Engineer
201706	Neven	Ullian	85854	Senior Staff
248651	Shaleah	Andreotta	80316	Senior Engineer
409544	Divine	Hegner	84144	Senior Engineer
22543	Junichi	Luff	95147	Senior Staff
439085	Fai	Gonthier	101397	Staff
226450	Heejo	Ozeri	46996	Engineer
71971	Christoph	Peek	80177	Senior Staff
444716	Karsten	Heemskerk	54044	Senior Engineer
55281	Mohammad	Ellozy	79773	Senior Engineer
263061	Xiaobin	Jenevein	81031	Senior Staff
283110	Akeel	Leuchs	73773	Senior Engineer
431436	Masaki	Ramamoorthy	118063	Senior Staff
295082	Khatoun	Undy	86130	Engineer
246059	Hatem	Koblick	48778	Engineer
470293	Gregory	Akazan	91102	Senior Engineer

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