Homework 6

TO: Lawrence Summerset
FROM: Jonas Zhonghan Xie

Hi Lawrence,

I am glad to hear that our information is helpful to you. Remember to share some pictures from your honeymoon trip with us!

I have attached the answers and the diagram for your questions.

Part 1:

1. The number of employees born in each month is as follows:

```
mysql> SELECT month(birth_date), COUNT(1) FROM employees GROUP BY month(birth_date) ORDER BY month(birt
h_date);
+-------------------+----------+
| month(birth_date) | COUNT(1) |
+-------------------+----------+
|                 1 |    25412 |
|                 2 |    23483 |
|                 3 |    25649 |
|                 4 |    24631 |
|                 5 |    25113 |
|                 6 |    24712 |
|                 7 |    25698 |
|                 8 |    25262 |
|                 9 |    24720 |
|                10 |    25518 |
|                11 |    24500 |
|                12 |    25326 |
+-------------------+----------+
12 rows in set (0.33 sec)
```

2. On 25th of the months we hired the most employees: about 56.4 employees on average.

```
mysql> SELECT DAY(hire_date), AVG(daily_hires) AS avg_daily_hires
    -> FROM (SELECT hire_date, COUNT(1) AS daily_hires FROM employees GROUP BY hire_date) daily_query
    -> GROUP BY DAY(hire_date)
    -> ORDER BY avg_daily_hires DESC
    -> LIMIT 1;
+----------------+-----------------+
| DAY(hire_date) | avg_daily_hires |
+----------------+-----------------+
|             25 |         56.4068 |
+----------------+-----------------+
1 row in set (0.41 sec)
```

3. The average salary of each title is as follows:

```
mysql> SELECT t.title, AVG(s.salary) AS average_salary
    -> FROM employees e
    -> LEFT JOIN titles t ON e.emp_no=t.emp_no
    -> LEFT JOIN salaries s ON e.emp_no=s.emp_no
    -> WHERE year(t.to_date)=9999 AND year(s.to_date)=9999
    -> GROUP BY t.title
    -> ORDER BY average_salary DESC;
+--------------------+----------------+
| title              | average_salary |
+--------------------+----------------+
| Senior Staff       |     80706.4959 |
| Manager            |     77723.6667 |
| Senior Engineer    |     70823.4376 |
| Technique Leader   |     67506.5903 |
| Staff              |     67330.6652 |
| Engineer           |     59602.7378 |
| Assistant Engineer |     57317.5736 |
+--------------------+----------------+
7 rows in set (11.21 sec)
```

4. The average salary of current employees by the year of hire is as follows:

```
mysql> SELECT year(e.hire_date) AS year_hired, AVG(s.salary) AS avg_salary
    -> FROM employees e
    -> JOIN salaries s ON e.emp_no=s.emp_no
    -> WHERE year(s.to_date)=9999
    -> GROUP BY year(e.hire_date)
    -> ORDER BY avg_salary DESC;
+------------+------------+
| year_hired | avg_salary |
+------------+------------+
|       1985 | 78870.3162 |
|       1986 | 77411.4463 |
|       1987 | 75927.5882 |
|       1988 | 74201.5604 |
|       1989 | 73053.4454 |
|       1990 | 71483.8574 |
|       1991 | 69812.8034 |
|       1992 | 68286.0711 |
|       1993 | 67090.8002 |
|       1994 | 65332.5509 |
|       1995 | 63705.1261 |
|       1996 | 62424.6746 |
|       1997 | 60794.5994 |
|       1998 | 59673.0602 |
|       1999 | 58199.3812 |
|       2000 | 58192.1111 |
+------------+------------+
16 rows in set (6.75 sec)
```

Part 2:

1. For your questions about average steps in July, are you looking for the average daily steps in July or the average steps of all employees in the whole month? I present the average daily steps in July as follows.

If you need the later one, please let me know.

```
mysql> SELECT u.name, AVG(d.fitbit_steps)
    -> FROM users_field_data u
    -> JOIN fitbit_day_detail d ON u.uid=d.user_id
    -> WHERE MONTH(d.fitbit_date)=7
    -> GROUP BY u.name
    -> LIMIT 50;
+----------------------------------+---------------------+
| name                             | AVG(d.fitbit_steps) |
+----------------------------------+---------------------+
| 1de2e393b047677dcf7cf5f729c3afc4 |              7.0396 |
| 82c8ca7904fea3535400823529ade611 |              6.0800 |
| c95edebebbb7ffac997419157cd0e4e9 |              3.0955 |
| 00e873bcbfa8c6171db3d1afbf6bf0cf |              7.4410 |
| 44a688027cc06a0ad4f399e3b7a1cc87 |              1.6860 |
| a1ad3be33cf61d95d8f21a93a094c747 |              3.6324 |
+----------------------------------+---------------------+
6 rows in set (2.34 sec)
```

2. For average number of minutes slept each month the user you are interested, I didn't find the records of the user. We have the sleep records for the following users.

```
mysql> SELECT d.name, COUNT(1) FROM fitbit_sleep s JOIN users_field_data d ON s.user_id=d.uid GROUP BY d.name;
+----------------------------------+----------+
| name                             | COUNT(1) |
+----------------------------------+----------+
| 1de2e393b047677dcf7cf5f729c3afc4 |      168 |
| 00e873bcbfa8c6171db3d1afbf6bf0cf |       76 |
| 82c8ca7904fea3535400823529ade611 |      175 |
| 44a688027cc06a0ad4f399e3b7a1cc87 |        1 |
+----------------------------------+----------+
4 rows in set (0.05 sec)
```

3. (Question 5) I showed the sample days when the user had more than 8 hours sleep (480 minutes).

```
mysql> SELECT s.fitbit_date, u.name, s.fitbit_duration
    -> FROM fitbit_sleep s
    -> JOIN users_field_data u ON s.user_id=u.uid
    -> WHERE s.fitbit_duration > 480
    -> LIMIT 20;
ERROR 2013 (HY000): Lost connection to MySQL server during query
No connection. Trying to reconnect...
Connection id:    5089
Current database: ro_research1

+-------------+----------------------------------+-----------------+
| fitbit_date | name                             | fitbit_duration |
+-------------+----------------------------------+-----------------+
| 2019-07-06  | 1de2e393b047677dcf7cf5f729c3afc4 |             595 |
| 2019-07-04  | 1de2e393b047677dcf7cf5f729c3afc4 |             603 |
| 2019-07-03  | 1de2e393b047677dcf7cf5f729c3afc4 |             484 |
| 2019-06-30  | 1de2e393b047677dcf7cf5f729c3afc4 |             626 |
| 2019-06-29  | 1de2e393b047677dcf7cf5f729c3afc4 |             686 |
| 2019-06-27  | 1de2e393b047677dcf7cf5f729c3afc4 |             510 |
| 2019-07-07  | 82c8ca7904fea3535400823529ade611 |             635 |
| 2019-07-06  | 82c8ca7904fea3535400823529ade611 |             513 |
| 2019-07-04  | 82c8ca7904fea3535400823529ade611 |             558 |
| 2019-06-28  | 82c8ca7904fea3535400823529ade611 |             541 |
| 2019-06-20  | 82c8ca7904fea3535400823529ade611 |             487 |
| 2019-06-16  | 82c8ca7904fea3535400823529ade611 |             481 |
| 2019-06-09  | 82c8ca7904fea3535400823529ade611 |             579 |
| 2019-06-08  | 82c8ca7904fea3535400823529ade611 |             545 |
| 2019-06-02  | 82c8ca7904fea3535400823529ade611 |             516 |
| 2019-06-01  | 82c8ca7904fea3535400823529ade611 |             494 |
| 2019-07-09  | 1de2e393b047677dcf7cf5f729c3afc4 |             552 |
| 2019-07-10  | 1de2e393b047677dcf7cf5f729c3afc4 |             550 |
| 2019-07-13  | 82c8ca7904fea3535400823529ade611 |             622 |
| 2019-07-14  | 1de2e393b047677dcf7cf5f729c3afc4 |             639 |
+-------------+----------------------------------+-----------------+
20 rows in set (0.25 sec)
```

The diagram is attached in the email. Please let me know if you have any questions.

Best,
Jonas