Dear Lawrence,

Hope you had a lovely honeymoon! It is my pleasure to answer your questions and here are my answers with your questions:

Part 1: From the employee database

1. How many employees do we have born in each month? *

```
mysql> select month(birth_date) as month, count(*) as number from employees
    -> group by month(birth_date) order by month(birth_date);
+-------+--------+
| month | number |
+-------+--------+
|     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)
```

   employees

Field Name	Data Type	Values	Note
emp_no	int	employee number	primary key
birth_date	date	birthdate of employee	
first_name	varchar	first name of employee	
last_name	varchar	last name of employee	
gender	enum('M', 'F')	gender of employee	
hire_date	date	employee hired date	

2. What day(as in day of the month) on average do we hire the most people* ?

   3 is the day in a month hired most people.

```
mysql> select day(hire_date) as day,
    -> count(*)/(select count(distinct date_format(hire_date, '%Y-%m')) from employees) as hires
    -> from employees group by day(hire_date) order by hires desc;
+------+---------+
| day  | hires   |
+------+---------+
|    3 | 55.9006 |
|   28 | 55.5635 |
|   16 | 55.2928 |
|   25 | 55.1602 |
|   14 | 55.0718 |
|   24 | 55.0331 |
|    7 | 55.0276 |
|    4 | 54.9613 |
|   13 | 54.8840 |
|   21 | 54.6851 |
|   22 | 54.6796 |
|    6 | 54.5912 |
|    8 | 54.5856 |
|   12 | 54.5856 |
|   11 | 54.5359 |
|   20 | 54.4807 |
|   17 | 54.3923 |
|    2 | 54.3923 |
|   18 | 54.2486 |
|   23 | 54.2431 |
|    9 | 54.2210 |
|   10 | 54.1160 |
|    1 | 54.0773 |
|   15 | 53.9061 |
|   26 | 53.7348 |
|   27 | 53.6851 |
|   19 | 53.4586 |
|    5 | 53.2486 |
|   29 | 50.4365 |
|   30 | 49.5138 |
|   31 | 30.8785 |
+------+---------+
31 rows in set (1.21 sec)
```

3. What is the average salary by job title currently for all staff? *

```
mysql> select t.title, avg(s.salary) as avg_salary from titles t
    -> join salaries s on t.emp_no = s.emp_no
    -> where t.from_date <= now() and (t.to_date > now() or t.to_date is null)
    ->  and s.from_date <= now() and (s. to_date > now() or s.to_date is null)
    -> group by t.title;
+--------------------+------------+
| title              | avg_salary |
+--------------------+------------+
| Senior Engineer    | 70823.4376 |
| Staff              | 67330.6652 |
| Senior Staff       | 80706.4959 |
| Engineer           | 59602.7378 |
| Assistant Engineer | 57317.5736 |
| Technique Leader   | 67506.5903 |
| Manager            | 77723.6667 |
+--------------------+------------+
7 rows in set (5.61 sec)
```

Title

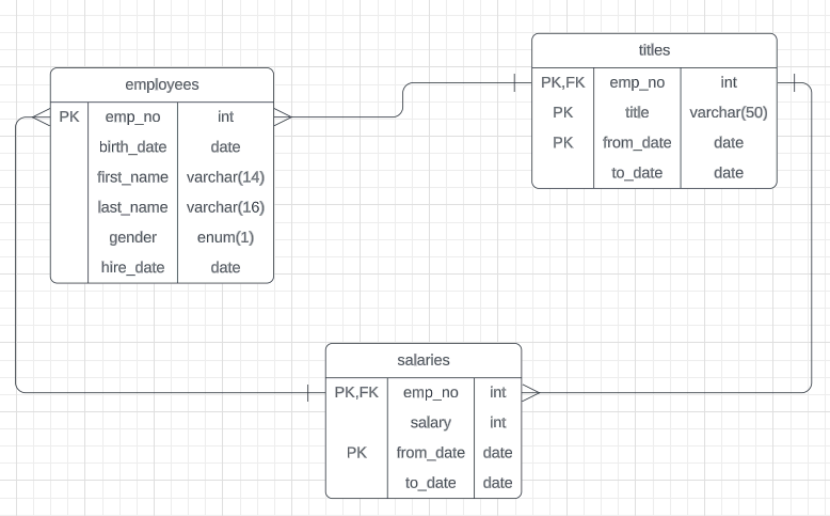
Field Name	Data Type	Values	Note
emp_no	int	employee number	primary key
title	varchar	title of employee	
from_date	date	employee hired from date	
to_date	date	employee left company date	

Salaries

Field Name	Data Type	Values	Note
emp_no	int	employee number	primary key
salary	int	salary of employee	
from_date	date	employee hired from date	
to_date	date	employee left company date	

4. What is the average salary for all folks that are currently employed by year of hire? *

```
mysql> select year(e.hire_date) as year, avg(s.salary) as avg_salary
    -> from employees e join salaries s on e.emp_no = s.emp_no
    -> where s.from_date <= now() and (s.to_date > now() or s.to_date is null)
    -> group by year(e.hire_date) order by year;
+------+------------+
| year | 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 (4.74 sec)
```



Part 2: From the research1 database

1. By username what is the average number of steps for July. *

```
mysql> select u.name as username, avg(f.fitbit_steps) as steps7
    -> from fitbit_day_detail f join users_field_data u on f.user_id = u.uid
    -> where month(f.fitbit_date) = 7 group by u.name;
+----------------------------------+---------+
| username                         | steps7 |
+----------------------------------+---------+
| 1de2e393b047677dcf7cf5f729c3afc4 | 7.0396 |
| 82c8ca7904fea3535400823529ade611 | 6.0800 |
| c95edebebbb7ffac997419157cd0e4e9 | 3.0955 |
| 00e873bcbfa8c6171db3d1afbf6bf0cf | 7.4410 |
| 44a688027cc06a0ad4f399e3b7a1cc87 | 1.6860 |
| a1ad3be33cf61d95d8f21a93a094c747 | 3.6324 |
+----------------------------------+---------+
6 rows in set (3.65 sec)
```

fitbit_day_detail

Field Name	Data Type	Values	Note
id	int	id of detail	primary key
user_id	int	id of corresponding user	
fitbit_steps	int	steps of detail	
created	int	person who chreated the api	
changed	int	person who changed the api	
fitbit_date	date	date of the detail	

users_field_data

Field Name	Data Type	Values	Note
uid	int	id of user	primary key
langcode	varchar	corresponding langcode of user	
name	varchar	name of user	
mail	varchar	mail of user	
timezone	varcahr	timezone of user	

2. For the user with the name 'f9f67f5beddc05e72d4c1715c26df95d', what is the average number of minutes they sleep each month. Remember to write this as one query. *

```
mysql> select month(f.fitbit_date) as month, avg(f.fitbit_timeinbed) as sleep7
    -> from fitbit_sleep f join users_field_data u on f.user_id = u.uid
    -> where u.name = 'f9f67f5beddc05e72d4c1715c26df95d'
    -> group by month(f.fitbit_date);
Empty set (0.04 sec)
```

fitbit_sleep

Field Name	Data Type	Values	Note
id	int	id of detail	primary key
user_id	int	id of corresponding user	
name	varchar	name of user	
fitbit_date	date	date of active	
fitbit_duration	int	duration of fitbit	
fitbit_efficiency	int	efficiency of fitbit	
fitbit_timeinbed	int	sleep of fitbit	
fitbit_ismainsleep	int	whether fitbit main sleep	
created	int	user who created the api	

3. Please write a query that lists each user_id and the max steps they walked in a single day for each month.

```
mysql>  select f.user_id, month(f.fitbit_date) as month, max(f.fitbit_steps) as steps
    -> from fitbit_day_detail f group by f.user_id, month(f.fitbit_date) order by user_id, month;
+---------+-------+-------+
| user_id | month | steps |
+---------+-------+-------+
|     148 |     5 |     0 |
|     148 |     6 |   132 |
|     148 |     7 |   176 |
|     148 |     8 |   140 |
|     148 |     9 |   151 |
|     148 |    10 |   139 |
|     148 |    11 |   142 |
|     207 |     7 |   146 |
|     207 |     8 |   152 |
|     207 |     9 |   174 |
|     207 |    10 |   165 |
|     475 |     7 |   117 |
|     475 |     8 |   155 |
|     475 |     9 |   151 |
|     475 |    10 |   117 |
|     592 |     5 |   125 |
|     592 |     6 |   160 |
|     592 |     7 |   167 |
|     592 |     8 |   152 |
|     592 |     9 |   137 |
|     592 |    10 |   138 |
|     592 |    11 |   146 |
|     601 |     7 |   184 |
|     601 |     8 |   144 |
|     601 |     9 |     0 |
|     601 |    10 |     0 |
|     648 |     6 |   153 |
|     648 |     7 |   168 |
|     648 |     8 |   176 |
|     648 |     9 |   149 |
|     648 |    10 |   160 |
|     648 |    11 |   133 |
+---------+-------+-------+
32 rows in set (1.54 sec)
```

4. Please provide a listing of each user_id and the if they met their goal on average per month (This is a quote from one of our researchers, figure out how to answer it and describe how you answered it)

```
mysql> select g.user_id, sum(f.fitbit_steps)/count(distinct date_format(f.fitbit_date, '%Y-%m')) as avg_steps
    -> from goal_entity g join fitbit_day_detail f on g.user_id = f.user_id
    -> group by g.user_id having avg(g.goal) < avg_steps;
+---------+--------------+
| user_id | avg_steps    |
+---------+--------------+
|     148 | 4392671.4286 |
|     207 | 2017531.2500 |
|     601 |  963651.5000 |
|     648 | 2299503.5000 |
+---------+--------------+
4 rows in set (2 min 7.38 sec)
```

goal_entity

Field Name	Data Type	Values	Note
id	int	id of detail	primary key
user_id	int	id of corresponding user	
goal	int	goal of steps	
date	varchar	date of goal set	

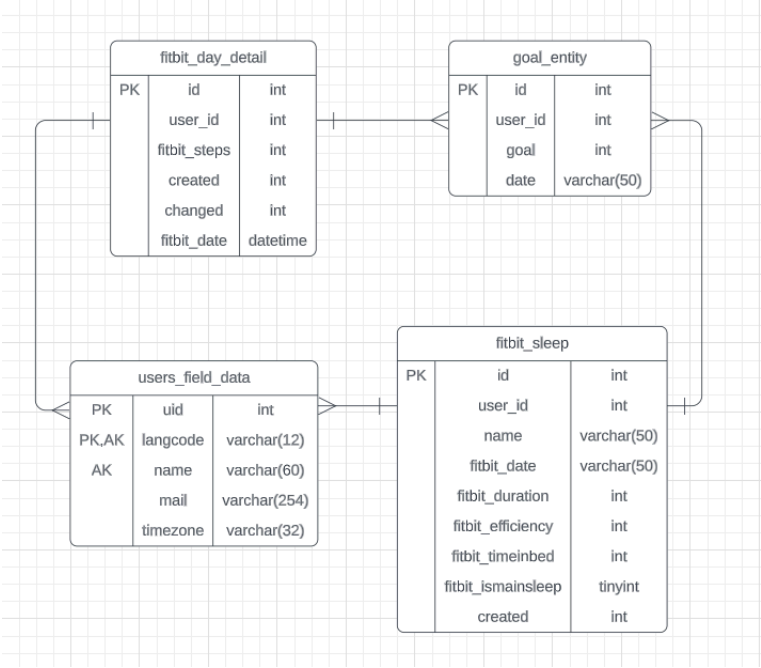
5. What days did users get more than 8 hours of sleep? Please provide me a sample of the user_id's, the names and the days if the list is too long. Your query should NOT contain any numbers above 100. *

   The output table is too long so I showed randomly 10 rows.

```
mysql> select f.user_id, u.name, f.fitbit_date from fitbit_sleep f join users_field_data u on f.user_id = u.uid
    -> where f.fitbit_timeinbed >= 8*60 limit 10;
+---------+----------------------------------+-------------+
| user_id | name                             | fitbit_date |
+---------+----------------------------------+-------------+
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-07-06  |
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-07-04  |
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-07-03  |
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-06-30  |
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-06-29  |
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-06-27  |
|     148 | 1de2e393b047677dcf7cf5f729c3afc4 | 2019-06-25  |
|     592 | 82c8ca7904fea3535400823529ade611 | 2019-07-07  |
|     592 | 82c8ca7904fea3535400823529ade611 | 2019-07-06  |
|     592 | 82c8ca7904fea3535400823529ade611 | 2019-07-04  |
+---------+----------------------------------+-------------+
10 rows in set (0.04 sec)
```

6. For user with the name of 82c8ca7904fea3535400823529ade611, what were the average number of steps taken per month per min?

```
mysql> select date_format(fitbit_date, '%Y-%m') as month, sum(fitbit_steps)/count(distinct fitbit_date) as avg_steps_min
    -> from fitbit_day_detail f join users_field_data u on f.user_id = u.uid
    -> where u.name = '82c8ca7904fea3535400823529ade611' group by date_format(fitbit_date, '%Y-%m') order by month;
+---------+---------------+
| month   | avg_steps_min |
+---------+---------------+
| 2019-05 |        9.2243 |
| 2019-06 |        7.1256 |
| 2019-07 |        6.0800 |
| 2019-08 |        6.8825 |
| 2019-09 |        7.1243 |
| 2019-10 |        7.2644 |
| 2019-11 |        7.2535 |
+---------+---------------+
7 rows in set (2.68 sec)
```



I hope these insights are of value to you! On a side note, I haven't been informed about our leader's promotion. If this is accurate, do you think there will be any changes within our team?

Regards,

Jun