Inspiring Excellence

CSE 370: Database Systems

Lab Homework 1

Section: 07

Submitted by:

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Context: Soon after joining Google's elite dev team, Area 120, you were assigned to a project using MySQL since it was your specialty. The project was a social media platform specialized in allowing developers from all over the globe to connect to each other, and it would have features similar to Facebook. For your first task, you have been assigned to work one the tables of one of the project databases. The table name is **"n"** which is shown below.

member_id	name	email	influence_count	Joining_date	multiplier
1	Taylor Otwell	otwell@laravel.com	739360	2020-6-10	10
2	Ryan Dahl	ryan@nodejs.org	633632	2020-04-22	10
3	Brendan Eich	eich@javascript.com	939570	2020-05-07	8
5	Evan You	you@vuejs.org	982630	2020-06-11	7
6	Rasmus Lerdorf	lerdorf@php.net	937927	2020-06-3	8
7	Guido van Rossum	guido@python.org	968827	2020-07-18	19
8	Adrian Holovaty	adrian@djangoproject.com	570724	2020-05-07	5
9	Simon Willison	simon@djangoproject.com	864615	2020-04-30	4
10	James Gosling	james@java.com	719491	2020-05-18	5
11	Rod Johnson	rod@spring.io	601744	2020-05-18	7
12	Satoshi Nakamoto	nakamoto@blockchain.com	630488	2020-05-10	10

Write the queries of the tasks given below [5 X 2 = 10].

1. **Create the above table with appropriate data type for each column.**

SQL query for creating Developers table

```
CREATE TABLE `Developers`(
   member_id       INTEGER
  ,name            VARCHAR(59)
  ,email           VARCHAR(59)
  ,influence_count INTEGER
  ,Joining_date    DATE
  ,multiplier      INTEGER
);
```

Outputs:

```
MariaDB [370]> -- creating table;
MariaDB [370]> CREATE TABLE `Developers`(
    ->    member_id       INTEGER
    ->   ,name            VARCHAR(59)
    ->   ,email           VARCHAR(59)
    ->   ,influence_count INTEGER
    ->   ,Joining_date    DATE
    ->   ,multiplier      INTEGER
    -> );
Query OK, 0 rows affected (0.010 sec)
```

Initial State of Database

```
MariaDB [370]> SELECT * FROM Developers;
Empty set (0.001 sec)
```

SQL query for inserting all data given.

```
INSERT INTO
`Developers`(member_id,name,email,influence_count,Joining_date,multiplier)VALUES
(1,'Taylor Otwell','otwell@laravel.com',739360,'2020-6-10',10),
(2,'Ryan Dahl','ryan@nodejs.org',633632,'2020-04-22',10),
(3,'Brendan Eich','eich@javascript.com',939570,'2020-05-07',8),
(5,'Evan You','you@vuejs.org',982630,'2020-06-11',7),
(6,'Rasmus Lerdorf','lerdorf@php.net',937927,'2020-06-3',8),
(7,'Guido van Rossum','guido@python.org',968827,'2020-07-18',19),
(8,'Adrian Holovaty','adrian@djangoproject.com',570724,'2020-05-07',5),
(9,'Simon Willison','simon@djangoproject.com',864615,'2020-04-30',4),
(10,'James Gosling','james@java.com',719491,'2020-05-18',5),
(11,'Rod Johnson','rod@spring.io',601744,'2020-05-18',7),
```

```
(12,'Satoshi Nakamoto','nakamoto@blockchain.com',630488,'2020-05-10',10);
```

Outputs:

```
MariaDB [370]> INSERT INTO `Developers`(member_id,name,email,influence_count,Joining_date,multiplier)VALUES
    -> (1,'Taylor Otwell','otwell@laravel.com',739360,'2020-6-10',10),
    -> (2,'Ryan Dahl','ryan@nodejs.org',633632,'2020-04-22',10),
    -> (3,'Brendan Eich','eich@javascript.com',939570,'2020-05-07',8),
    -> (5,'Evan You','you@vuejs.org',982630,'2020-06-11',7),
    -> (6,'Rasmus Lerdorf','lerdorf@php.net',937927,'2020-06-3',8),
    -> (7,'Guido van Rossum','guido@python.org',968827,'2020-07-18',19),
    -> (8,'Adrian Holovaty','adrian@djangoproject.com',570724,'2020-05-07',5),
    -> (9,'Simon Willison','simon@djangoproject.com',864615,'2020-04-30',4),
    -> (10,'James Gosling','james@java.com',719491,'2020-05-18',5),
    -> (11,'Rod Johnson','rod@spring.io',601744,'2020-05-18',7),
    -> (12,'Satoshi Nakamoto','nakamoto@blockchain.com',630488,'2020-05-10',10);
Query OK, 11 rows affected (0.006 sec)
Records: 11  Duplicates: 0  Warnings: 0
```

Database state after inserting all data

```
MariaDB [370]> select * from Developers;
+-----------+-----------------+-------------------------+-----------------+--------------+------------+
| member_id | name            | email                   | influence_count | Joining_date | multiplier |
+-----------+-----------------+-------------------------+-----------------+--------------+------------+
|         1 | Taylor Otwell   | otwell@laravel.com      |          739360 | 2020-06-10   |         10 |
|         2 | Ryan Dahl       | ryan@nodejs.org         |          633632 | 2020-04-22   |         10 |
|         3 | Brendan Eich    | eich@javascript.com     |          939570 | 2020-05-07   |          8 |
|         5 | Evan You        | you@vuejs.org           |          982630 | 2020-06-11   |          7 |
|         6 | Rasmus Lerdorf  | lerdorf@php.net         |          937927 | 2020-06-03   |          8 |
|         7 | Guido van Rossum | guido@python.org        |          968827 | 2020-07-18   |         19 |
|         8 | Adrian Holovaty | adrian@djangoproject.com |          570724 | 2020-05-07   |          5 |
|         9 | Simon Willison  | simon@djangoproject.com |          864615 | 2020-04-30   |          4 |
|        10 | James Gosling   | james@java.com          |          719491 | 2020-05-18   |          5 |
|        11 | Rod Johnson     | rod@spring.io           |          601744 | 2020-05-18   |          7 |
|        12 | Satoshi Nakamoto | nakamoto@blockchain.com |          630488 | 2020-05-10   |         10 |
+-----------+-----------------+-------------------------+-----------------+--------------+------------+
11 rows in set (0.001 sec)
```

2. **Change the column name "influence_count". The new name should be "followers" and the data type should be integer.**

SQL query for changing column name

```
ALTER TABLE `Developers` CHANGE COLUMN `influence_count` `followers` INTEGER;
```

Outputs:

```
MariaDB [370]> ALTER TABLE `Developers` CHANGE COLUMN `influence_count` `followers` INTEGER;
Query OK, 0 rows affected (0.005 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

Database state after changing column name,

```
MariaDB [370]> SELECT * from Developers;
+-----------+------------------+--------------------------+-----------+--------------+------------+
| member_id | name             | email                    | followers | Joining_date | multiplier |
+-----------+------------------+--------------------------+-----------+--------------+------------+
|         1 | Taylor Otwell    | otwell@laravel.com       |    739360 | 2020-06-10   |         10 |
|         2 | Ryan Dahl        | ryan@nodejs.org          |    633632 | 2020-04-22   |         10 |
|         3 | Brendan Eich     | eich@javascript.com      |    939570 | 2020-05-07   |          8 |
|         5 | Evan You         | you@vuejs.org            |    982630 | 2020-06-11   |          7 |
|         6 | Rasmus Lerdorf   | lerdorf@php.net          |    937927 | 2020-06-03   |          8 |
|         7 | Guido van Rossum | guido@python.org         |    968827 | 2020-07-18   |         19 |
|         8 | Adrian Holovaty  | adrian@djangoproject.com |    570724 | 2020-05-07   |          5 |
|         9 | Simon Willison   | simon@djangoproject.com  |    864615 | 2020-04-30   |          4 |
|        10 | James Gosling    | james@java.com           |    719491 | 2020-05-18   |          5 |
|        11 | Rod Johnson      | rod@spring.io            |    601744 | 2020-05-18   |          7 |
|        12 | Satoshi Nakamoto | nakamoto@blockchain.com  |    630488 | 2020-05-10   |         10 |
+-----------+------------------+--------------------------+-----------+--------------+------------+
11 rows in set (0.001 sec)
```

3. **Update the number of followers of each developer by +10.**

Query for updating flower of each developer by 10.

```
UPDATE `Developers` SET followers = followers + 10;
```

Outputs:

```
MariaDB [370]> UPDATE `Developers` SET followers = followers + 10;
Query OK, 11 rows affected (0.002 sec)
Rows matched: 11  Changed: 11  Warnings: 0
```

Database state after running the query,

```
MariaDB [370]> SELECT * from Developers;
+-----------+------------------+--------------------------+-----------+--------------+------------+
| member_id | name             | email                    | followers | Joining_date | multiplier |
+-----------+------------------+--------------------------+-----------+--------------+------------+
|         1 | Taylor Otwell    | otwell@laravel.com       |    739370 | 2020-06-10   |         10 |
|         2 | Ryan Dahl        | ryan@nodejs.org          |    633642 | 2020-04-22   |         10 |
|         3 | Brendan Eich     | eich@javascript.com      |    939580 | 2020-05-07   |          8 |
|         5 | Evan You         | you@vuejs.org            |    982640 | 2020-06-11   |          7 |
|         6 | Rasmus Lerdorf   | lerdorf@php.net          |    937937 | 2020-06-03   |          8 |
|         7 | Guido van Rossum | guido@python.org         |    968837 | 2020-07-18   |         19 |
|         8 | Adrian Holovaty  | adrian@djangoproject.com |    570734 | 2020-05-07   |          5 |
|         9 | Simon Willison   | simon@djangoproject.com  |    864625 | 2020-04-30   |          4 |
|        10 | James Gosling    | james@java.com           |    719501 | 2020-05-18   |          5 |
|        11 | Rod Johnson      | rod@spring.io            |    601754 | 2020-05-18   |          7 |
|        12 | Satoshi Nakamoto | nakamoto@blockchain.com  |    630498 | 2020-05-10   |         10 |
+-----------+------------------+--------------------------+-----------+--------------+------------+
11 rows in set (0.001 sec)
```

4. **Show the name, email, and follower number of the developers.**

SQL query,

```
SELECT name,email,followers from `Developers`;
```

Outputs:

```
MariaDB [370]> SELECT name,email,followers from Developers;
+------------------+--------------------------+-----------+
| name             | email                    | followers |
+------------------+--------------------------+-----------+
| Taylor Otwell    | otwell@laravel.com       |    739370 |
| Ryan Dahl        | ryan@nodejs.org          |    633642 |
| Brendan Eich     | eich@javascript.com      |    939580 |
| Evan You         | you@vuejs.org            |    982640 |
| Rasmus Lerdorf   | lerdorf@php.net          |    937937 |
| Guido van Rossum | guido@python.org         |    968837 |
| Adrian Holovaty  | adrian@djangoproject.com |    570734 |
| Simon Willison   | simon@djangoproject.com  |    864625 |
| James Gosling    | james@java.com           |    719501 |
| Rod Johnson      | rod@spring.io            |    601754 |
| Satoshi Nakamoto | nakamoto@blockchain.com  |    630498 |
+------------------+--------------------------+-----------+
11 rows in set (0.001 sec)
```

5. **There is a formula to find the efficiency of the developers.**
Efficiency = ((followers*100/1000000) * (multipliers*100/20))/100.
Show the efficiency of each developer in a column named "o" along with their name.

In my database, I named multiplier as column names but multipliers used in the above expression thus changing column name … :\

Query,

```
ALTER TABLE `Developers` CHANGE COLUMN `multiplier` `multipliers` INTEGER;
```

Outputs:

```
MariaDB [370]> ALTER TABLE `Developers` CHANGE COLUMN `multiplier` `multipliers` INTEGER;
Query OK, 0 rows affected (0.005 sec)
Records: 0  Duplicates: 0  Warnings: 0

MariaDB [370]> SELECT * from Developers;
+-----------+------------------+--------------------------+-----------+--------------+-------------+
| member_id | name             | email                    | followers | Joining_date | multipliers |
+-----------+------------------+--------------------------+-----------+--------------+-------------+
|         1 | Taylor Otwell    | otwell@laravel.com       |    739370 | 2020-06-10   |          10 |
|         2 | Ryan Dahl        | ryan@nodejs.org          |    633642 | 2020-04-22   |          10 |
|         3 | Brendan Eich     | eich@javascript.com      |    939580 | 2020-05-07   |           8 |
|         5 | Evan You         | you@vuejs.org            |    982640 | 2020-06-11   |           7 |
|         6 | Rasmus Lerdorf   | lerdorf@php.net          |    937937 | 2020-06-03   |           8 |
|         7 | Guido van Rossum | guido@python.org         |    968837 | 2020-07-18   |          19 |
|         8 | Adrian Holovaty  | adrian@djangoproject.com |    570734 | 2020-05-07   |           5 |
|         9 | Simon Willison   | simon@djangoproject.com  |    864625 | 2020-04-30   |           4 |
|        10 | James Gosling    | james@java.com           |    719501 | 2020-05-18   |           5 |
|        11 | Rod Johnson      | rod@spring.io            |    601754 | 2020-05-18   |           7 |
|        12 | Satoshi Nakamoto | nakamoto@blockchain.com  |    630498 | 2020-05-10   |          10 |
+-----------+------------------+--------------------------+-----------+--------------+-------------+
11 rows in set (0.001 sec)
```

Now, finally using given expression to show Name and Efficiency of every developers, here is the Query,

```
SELECT name,((followers*100/1000000) * (multipliers*100/20))/100 AS Efficiency FROM `Developers`;
```

Outputs:

```
MariaDB [370]> SELECT name,((followers*100/1000000) * (multipliers*100/20))/100 AS Efficiency FROM `Developers`;
+-----------------+-----------------+
| name            | Efficiency      |
+-----------------+-----------------+
| Taylor Otwell   | 36.968500000000 |
| Ryan Dahl       | 31.682100000000 |
| Brendan Eich    | 37.583200000000 |
| Evan You        | 34.392400000000 |
| Rasmus Lerdorf  | 37.517480000000 |
| Guido van Rossum | 92.039515000000 |
| Adrian Holovaty | 14.268350000000 |
| Simon Willison  | 17.292500000000 |
| James Gosling   | 17.987525000000 |
| Rod Johnson     | 21.061390000000 |
| Satoshi Nakamoto | 31.524900000000 |
+-----------------+-----------------+
11 rows in set (0.001 sec)
```