DBMS – LAB -07

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ROLL NO: S20200010212

SECTION: C

TASK: (LAB EXERCISES)

SQL COMMANDS:

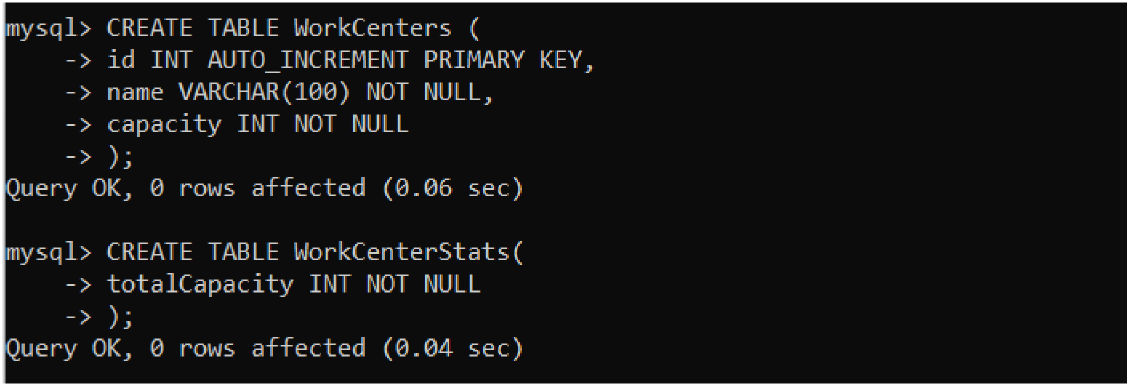
Topic: TRIGGERS

1. Write a trigger program to update the total capacity in the Work-Center-Stats table before a new work center is inserted into the Work-Center table:

First create the required tables for this question according to given tables:

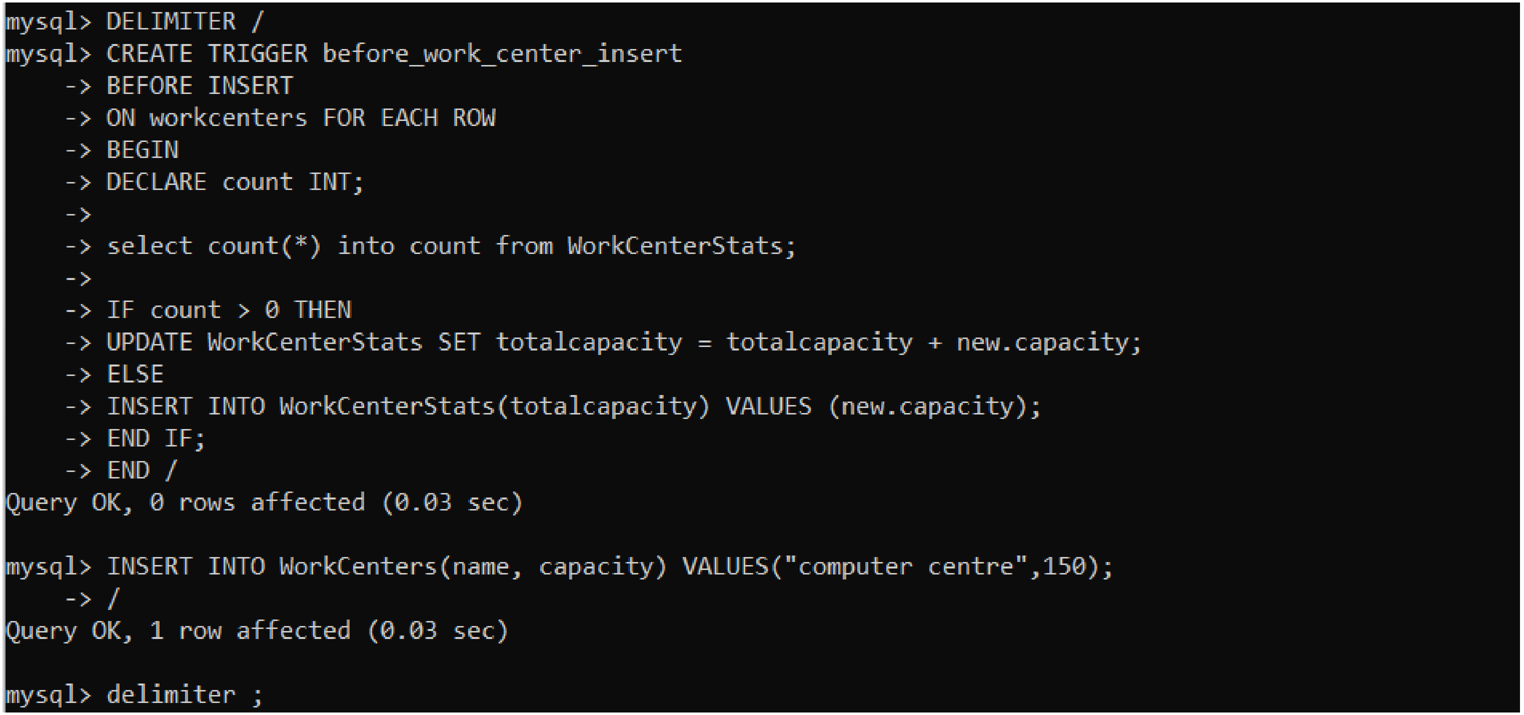
The tables are:

1. WorkCenters.
2. WorkCenterStats.



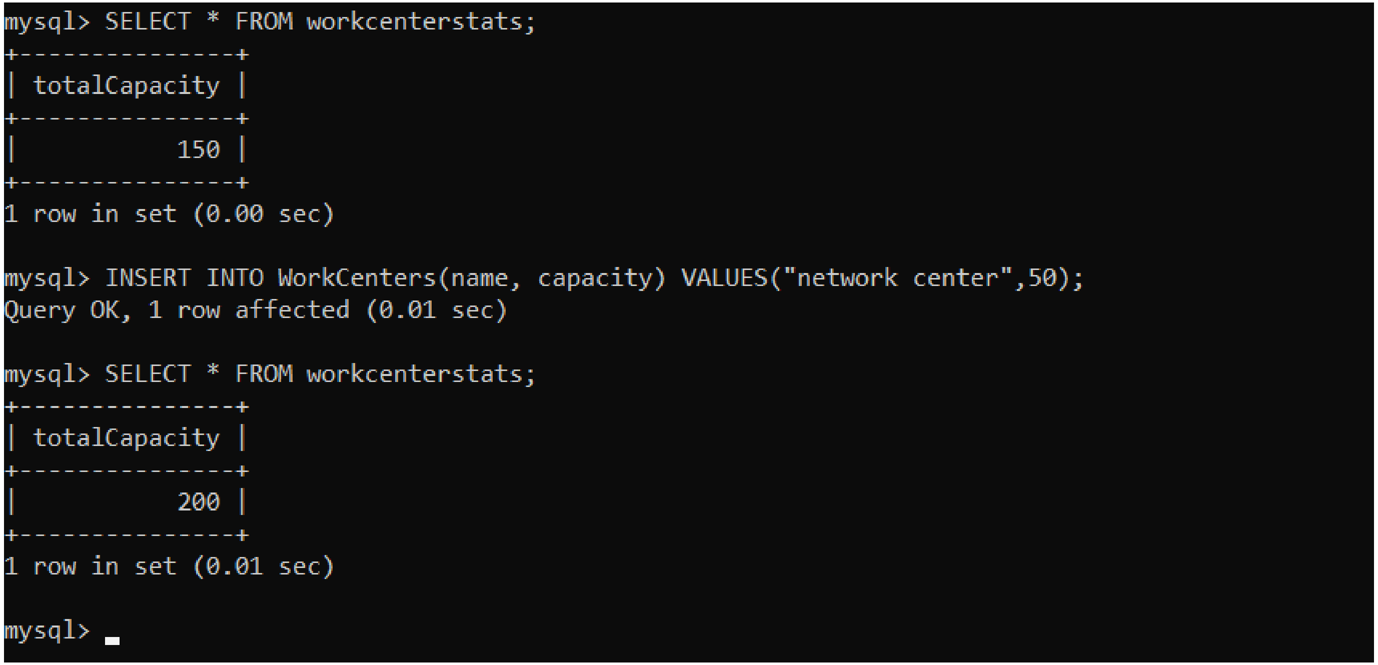
```
mysql> CREATE TABLE WorkCenters (
    -> id INT AUTO_INCREMENT PRIMARY KEY,
    -> name VARCHAR(100) NOT NULL,
    -> capacity INT NOT NULL
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> CREATE TABLE WorkCenterStats(
    -> totalCapacity INT NOT NULL
    -> );
Query OK, 0 rows affected (0.04 sec)
```

Next we create trigger and insert some values to check our trigger is working fine or not:



```
mysql> DELIMITER /
mysql> CREATE TRIGGER before_work_center_insert
    -> BEFORE INSERT
    -> ON workcenters FOR EACH ROW
    -> BEGIN
    -> DECLARE count INT;
    ->
    -> select count(*) into count from WorkCenterStats;
    ->
    -> IF count > 0 THEN
    -> UPDATE WorkCenterStats SET totalcapacity = totalcapacity + new.capacity;
    -> ELSE
    -> INSERT INTO WorkCenterStats(totalcapacity) VALUES (new.capacity);
    -> END IF;
    -> END /
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO WorkCenters(name, capacity) VALUES("computer centre",150);
    -> /
Query OK, 1 row affected (0.03 sec)

mysql> delimiter ;
```

Now when we insert in work centers table automatically workcenterstats is updated:
For two insertion values:



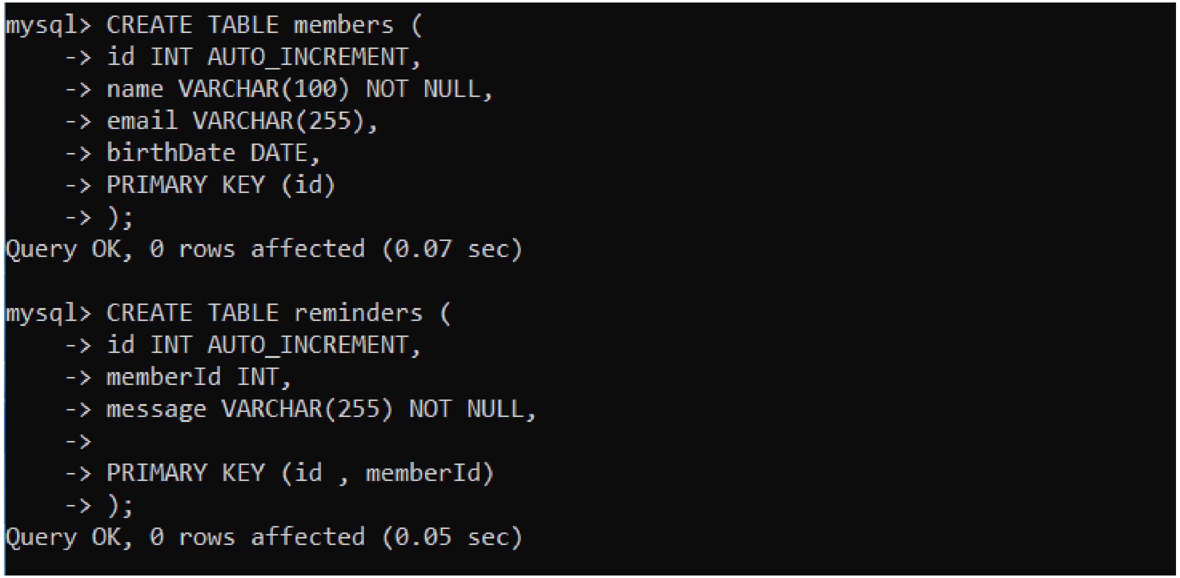
```
mysql> SELECT * FROM workcenterstats;
+---------------+
| totalCapacity |
+---------------+
|           150 |
+---------------+
1 row in set (0.00 sec)

mysql> INSERT INTO WorkCenters(name, capacity) VALUES("network center",50);
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM workcenterstats;
+---------------+
| totalCapacity |
+---------------+
|           200 |
+---------------+
1 row in set (0.01 sec)

mysql> _
```

2. Write a trigger program to inserts a reminder into the reminders table if the birthdate of the member is greater than 100 years.

First create the required tables for this question according to given tables:

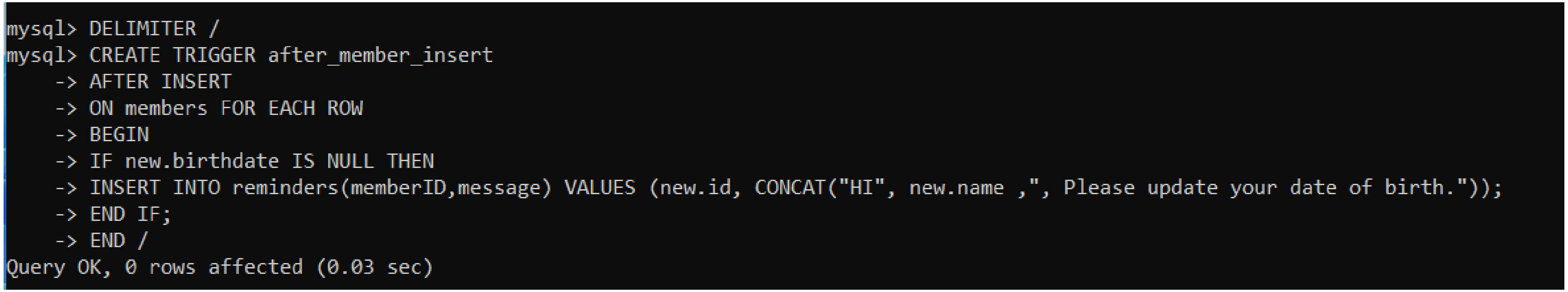
The tables are:

1. Members.
2. Reminders.



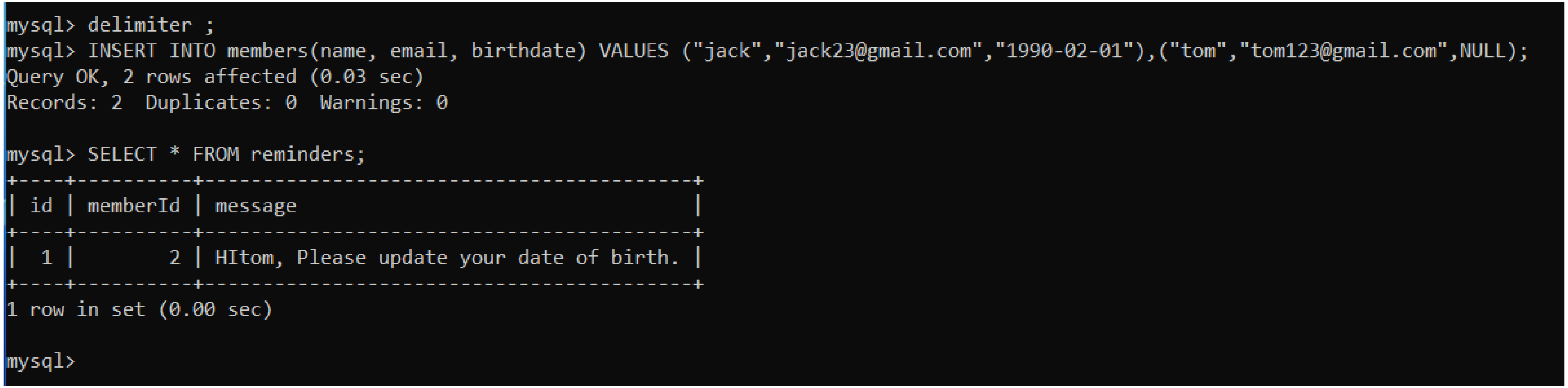
```
mysql> CREATE TABLE members (
    -> id INT AUTO_INCREMENT,
    -> name VARCHAR(100) NOT NULL,
    -> email VARCHAR(255),
    -> birthDate DATE,
    -> PRIMARY KEY (id)
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> CREATE TABLE reminders (
    -> id INT AUTO_INCREMENT,
    -> memberId INT,
    -> message VARCHAR(255) NOT NULL,
    ->
    -> PRIMARY KEY (id , memberId)
    -> );
Query OK, 0 rows affected (0.05 sec)
```

TRIGGER CREATED:



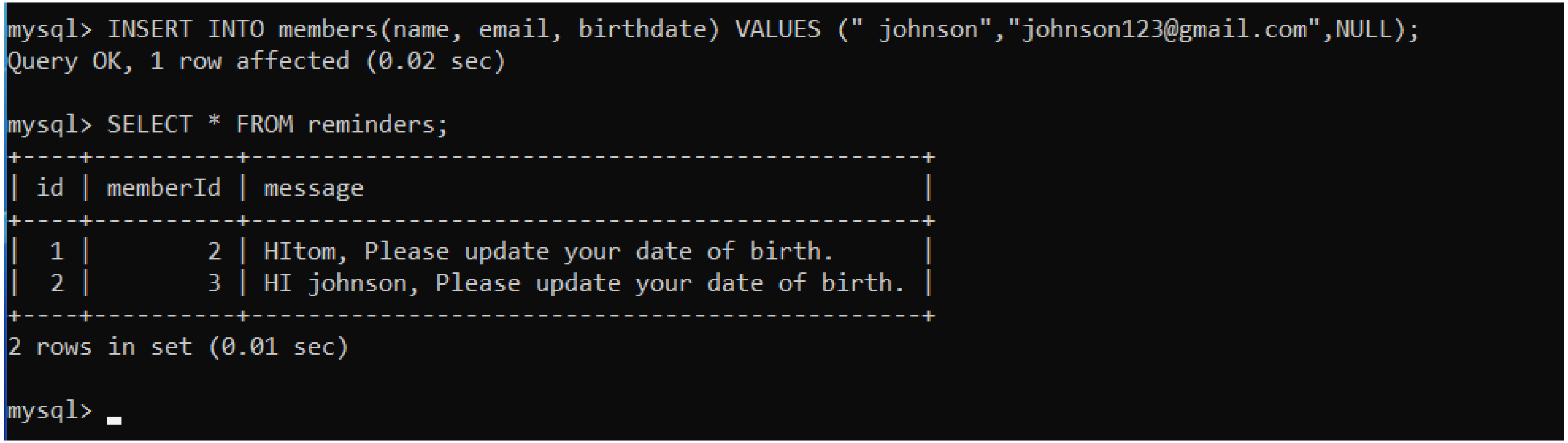
```
mysql> DELIMITER /
mysql> CREATE TRIGGER after_member_insert
    -> AFTER INSERT
    -> ON members FOR EACH ROW
    -> BEGIN
    -> IF new.birthdate IS NULL THEN
    -> INSERT INTO reminders(memberID,message) VALUES (new.id, CONCAT("HI", new.name ,", Please update your date of birth."));
    -> END IF;
    -> END /
Query OK, 0 rows affected (0.03 sec)
```

INSERTED TWO VALUES, ONE WITH NONE SO THE REMAIMDERS TABLE IS AUTOMATICALLY SHOWING MESSAGE:



```
mysql> delimiter ;
mysql> INSERT INTO members(name, email, birthdate) VALUES ("jack","jack23@gmail.com","1990-02-01"),("tom","tom123@gmail.com",NULL);
Query OK, 2 rows affected (0.03 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM reminders;
+----+----------+-------------------------------------------+
| id | memberId | message                                   |
+----+----------+-------------------------------------------+
|  1 |        2 | HItom, Please update your date of birth. |
+----+----------+-------------------------------------------+
1 row in set (0.00 sec)

mysql>
```

INSERTED ANOTHER VALUE WITH NONE SO THE REMAIMDERS TABLE IS AUTOMATICALLY SHOWING MESSAGE:

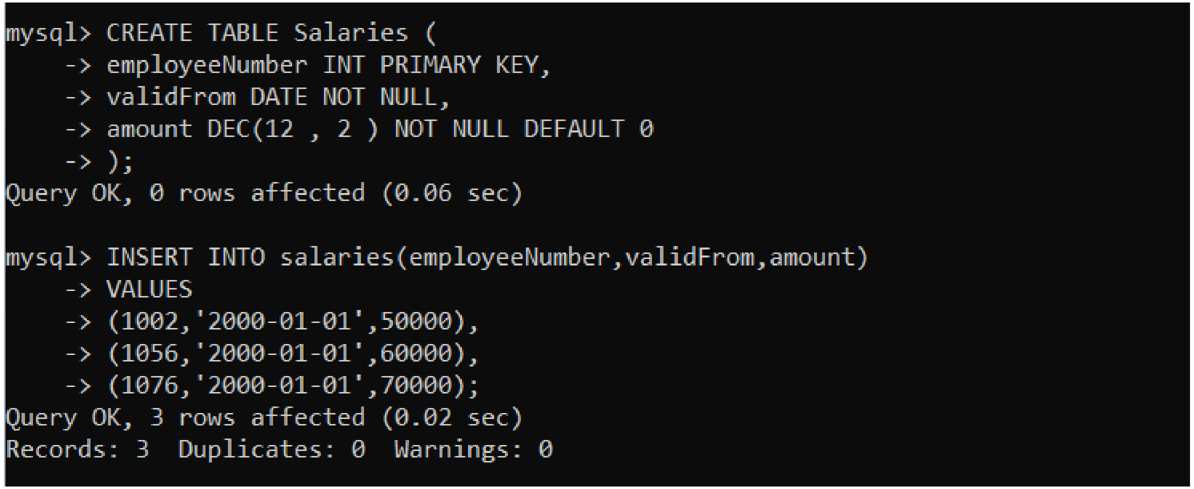


```
mysql> INSERT INTO members(name, email, birthdate) VALUES (" johnson","johnson123@gmail.com",NULL);
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM reminders;
+----+----------+-----------------------------------------------+
| id | memberId | message                                       |
+----+----------+-----------------------------------------------+
|  1 |        2 | HItom, Please update your date of birth.      |
|  2 |        3 | HI johnson, Please update your date of birth. |
+----+----------+-----------------------------------------------+
2 rows in set (0.01 sec)

mysql> _
```

3. Create MySQL Trigger that inserts a new row into the SalaryArchives table before a row from the Salaries table is deleted.

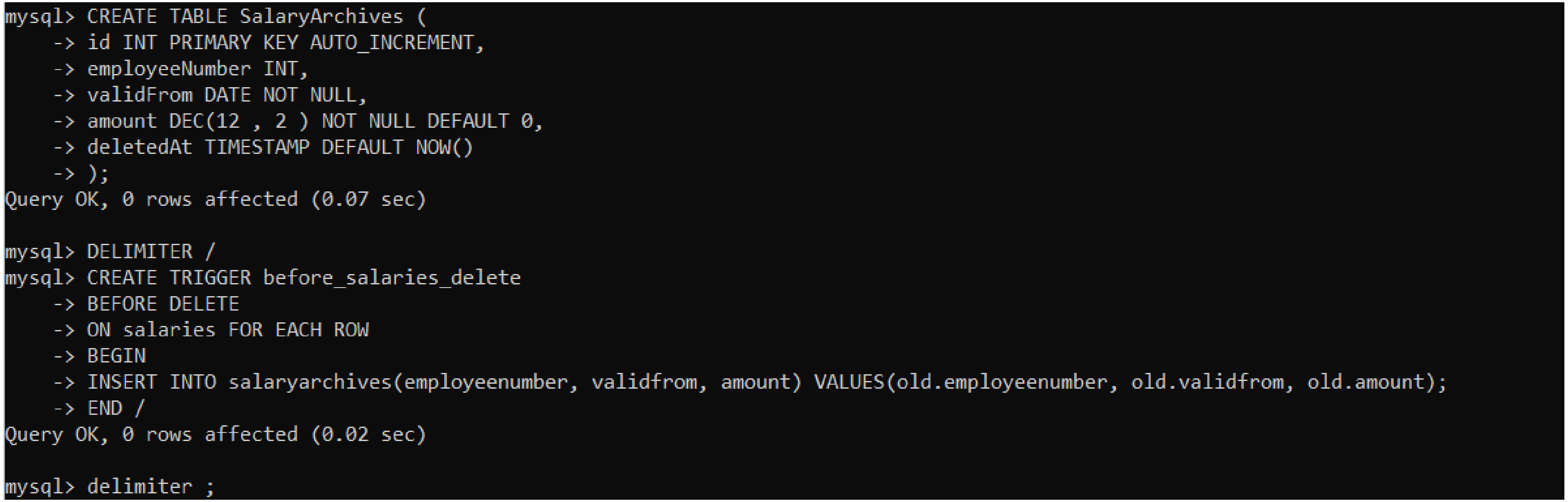
First create the required tables for this question according to given tables:
The tables are:

1. Salaries.
2. SalaryArchives and inserted values given in PDF.



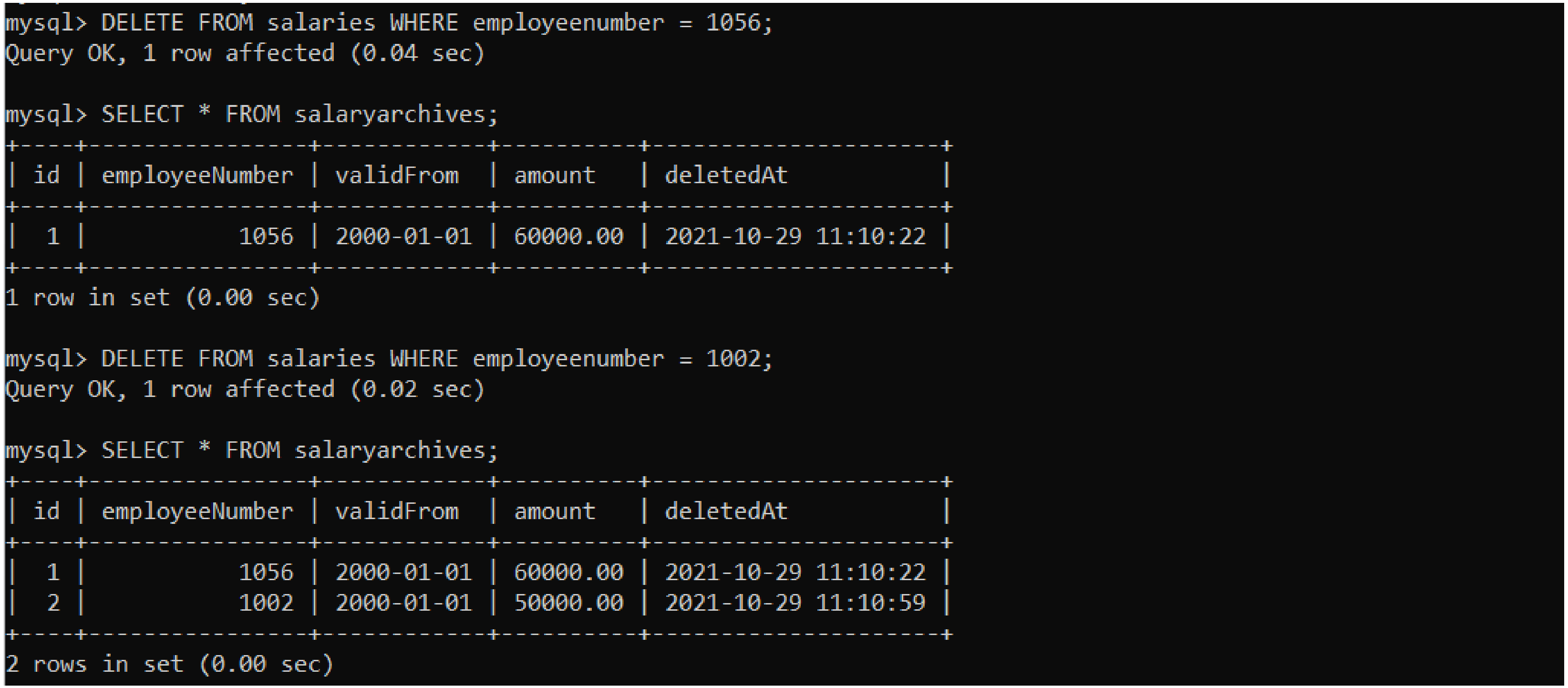
```
mysql> CREATE TABLE Salaries (
    -> employeeNumber INT PRIMARY KEY,
    -> validFrom DATE NOT NULL,
    -> amount DEC(12 , 2 ) NOT NULL DEFAULT 0
    -> );
Query OK, 0 rows affected (0.06 sec)

mysql> INSERT INTO salaries(employeeNumber,validFrom,amount)
    -> VALUES
    -> (1002,'2000-01-01',50000),
    -> (1056,'2000-01-01',60000),
    -> (1076,'2000-01-01',70000);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

Table Salary archives created and values inserted:
And TRIGGER is created



```
mysql> CREATE TABLE SalaryArchives (
    -> id INT PRIMARY KEY AUTO_INCREMENT,
    -> employeeNumber INT,
    -> validFrom DATE NOT NULL,
    -> amount DEC(12 , 2 ) NOT NULL DEFAULT 0,
    -> deletedAt TIMESTAMP DEFAULT NOW()
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> DELIMITER /
mysql> CREATE TRIGGER before_salaries_delete
    -> BEFORE DELETE
    -> ON salaries FOR EACH ROW
    -> BEGIN
    -> INSERT INTO salaryarchives(employeenumber, validfrom, amount) VALUES(old.employeenumber, old.validfrom, old.amount);
    -> END /
Query OK, 0 rows affected (0.02 sec)

mysql> delimiter ;
```

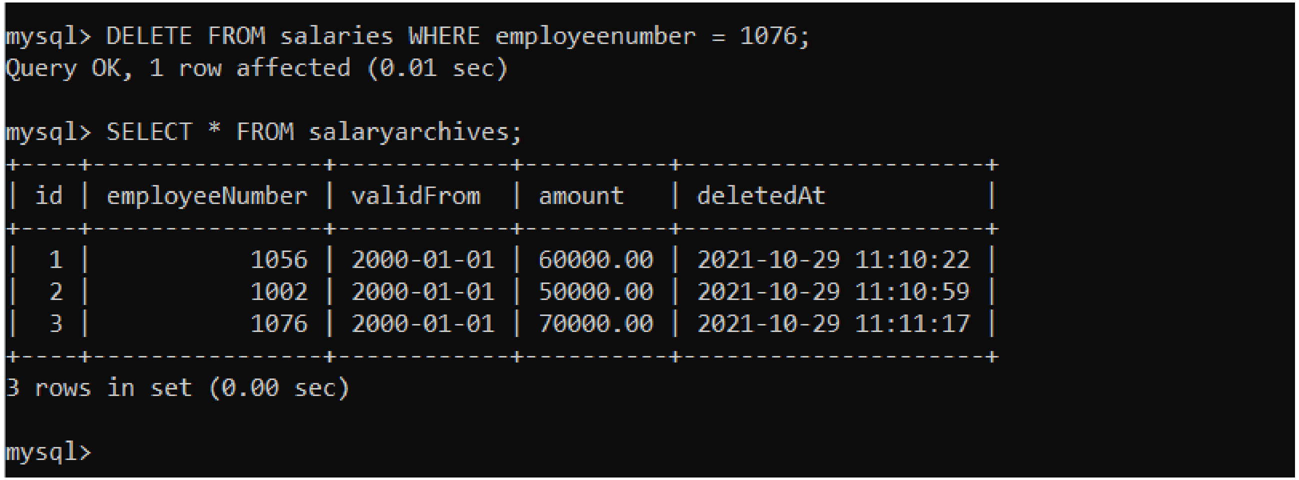
After deleting from salaries:
Automatically salaryarchives is getting updated.(we can see all details when it is getting deleted and etc …)



```
mysql> DELETE FROM salaries WHERE employeenumber = 1056;
Query OK, 1 row affected (0.04 sec)

mysql> SELECT * FROM salaryarchives;
+----+----------------+------------+----------+---------------------+
| id | employeeNumber | validFrom  | amount   | deletedAt           |
+----+----------------+------------+----------+---------------------+
|  1 |           1056 | 2000-01-01 | 60000.00 | 2021-10-29 11:10:22 |
+----+----------------+------------+----------+---------------------+
1 row in set (0.00 sec)

mysql> DELETE FROM salaries WHERE employeenumber = 1002;
Query OK, 1 row affected (0.02 sec)

mysql> SELECT * FROM salaryarchives;
+----+----------------+------------+----------+---------------------+
| id | employeeNumber | validFrom  | amount   | deletedAt           |
+----+----------------+------------+----------+---------------------+
|  1 |           1056 | 2000-01-01 | 60000.00 | 2021-10-29 11:10:22 |
|  2 |           1002 | 2000-01-01 | 50000.00 | 2021-10-29 11:10:59 |
+----+----------------+------------+----------+---------------------+
2 rows in set (0.00 sec)
```

After deleting all the records from salaries:

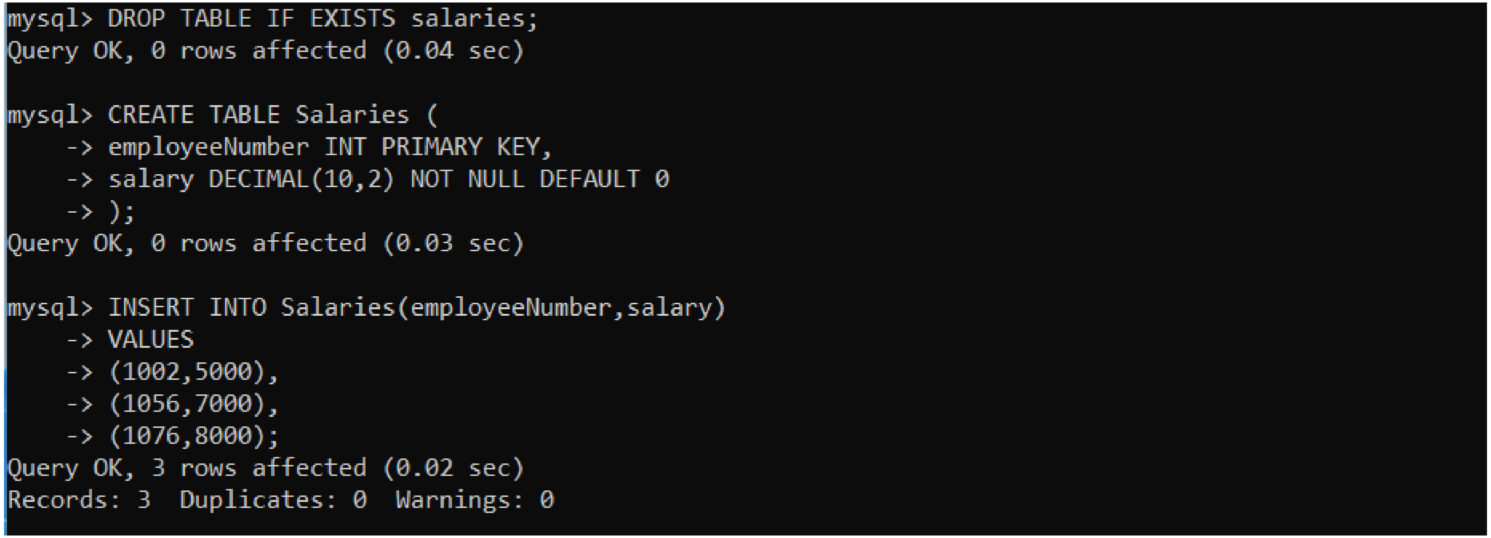
Automatically Salary-archives updated.



```
mysql> DELETE FROM salaries WHERE employeenumber = 1076;
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM salaryarchives;
+----+----------------+------------+----------+---------------------+
| id | employeeNumber | validFrom  | amount   | deletedAt           |
+----+----------------+------------+----------+---------------------+
|  1 |           1056 | 2000-01-01 | 60000.00 | 2021-10-29 11:10:22 |
|  2 |           1002 | 2000-01-01 | 50000.00 | 2021-10-29 11:10:59 |
|  3 |           1076 | 2000-01-01 | 70000.00 | 2021-10-29 11:11:17 |
+----+----------------+------------+----------+---------------------+
3 rows in set (0.00 sec)

mysql>
```

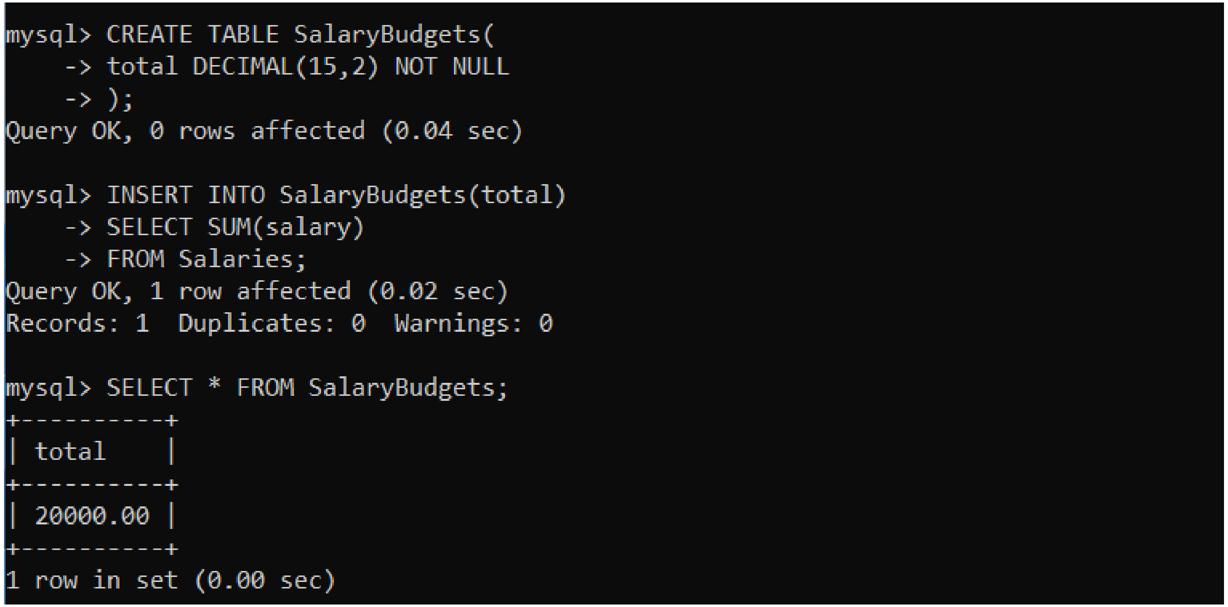
4. Create MySQL Trigger updates the total salary in the SalaryBudgets table after a row is deleted from the Salaries table.

Dropping the existing table and creating for new triggers
Created and inserted values in the table



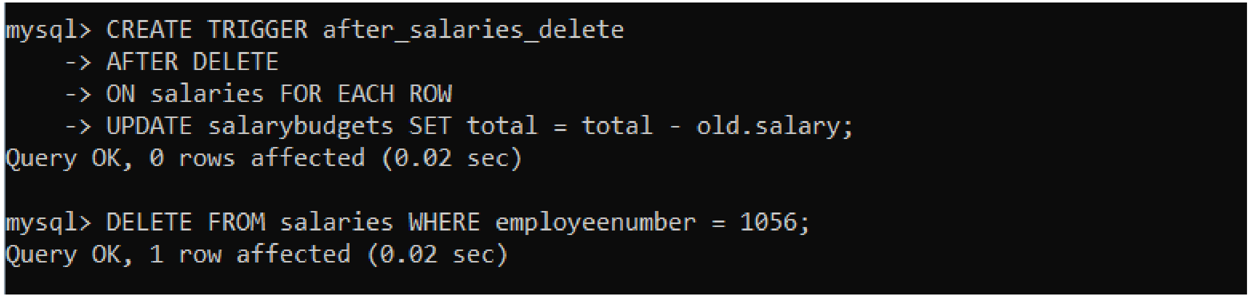
```
mysql> DROP TABLE IF EXISTS salaries;
Query OK, 0 rows affected (0.04 sec)

mysql> CREATE TABLE Salaries (
    -> employeeNumber INT PRIMARY KEY,
    -> salary DECIMAL(10,2) NOT NULL DEFAULT 0
    -> );
Query OK, 0 rows affected (0.03 sec)

mysql> INSERT INTO Salaries(employeeNumber,salary)
    -> VALUES
    -> (1002,5000),
    -> (1056,7000),
    -> (1076,8000);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0
```

Creating salary budget table:



```
mysql> CREATE TABLE SalaryBudgets(
    -> total DECIMAL(15,2) NOT NULL
    -> );
Query OK, 0 rows affected (0.04 sec)

mysql> INSERT INTO SalaryBudgets(total)
    -> SELECT SUM(salary)
    -> FROM Salaries;
Query OK, 1 row affected (0.02 sec)
Records: 1  Duplicates: 0  Warnings: 0

mysql> SELECT * FROM SalaryBudgets;
+----------+
| total    |
+----------+
| 20000.00 |
+----------+
1 row in set (0.00 sec)
```

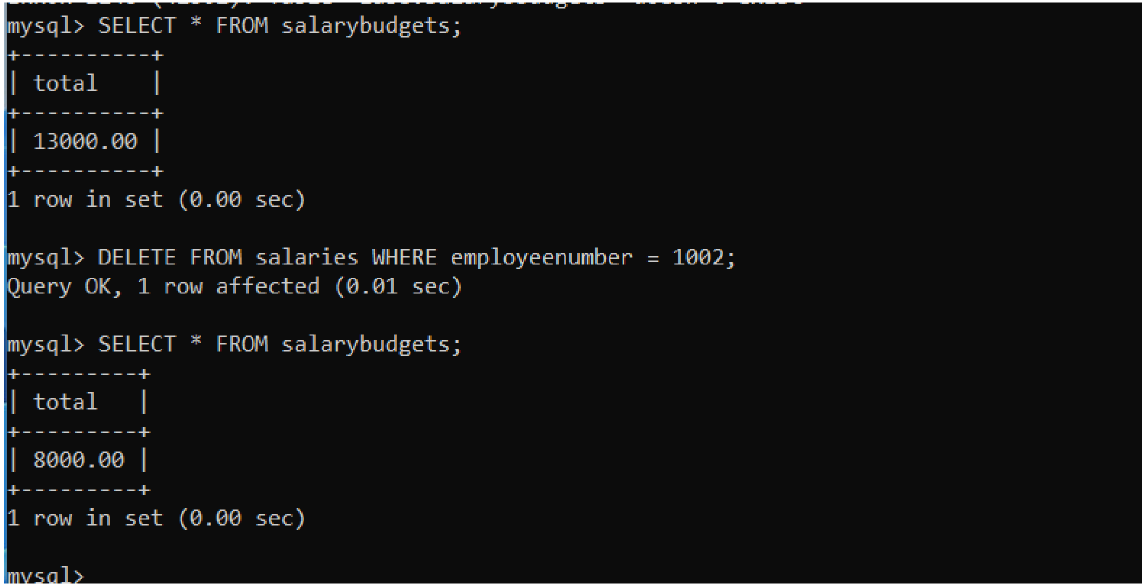
TRIGGER IS CREATED:



```
mysql> CREATE TRIGGER after_salaries_delete
    -> AFTER DELETE
    -> ON salaries FOR EACH ROW
    -> UPDATE salarybudgets SET total = total - old.salary;
Query OK, 0 rows affected (0.02 sec)

mysql> DELETE FROM salaries WHERE employeenumber = 1056;
Query OK, 1 row affected (0.02 sec)
```

Some values are deleted and checking the total balance of the existing users

After deleting and checking total of remaining members :



```
mysql> SELECT * FROM salarybudgets;
+----------+
| total    |
+----------+
| 13000.00 |
+----------+
1 row in set (0.00 sec)

mysql> DELETE FROM salaries WHERE employeenumber = 1002;
Query OK, 1 row affected (0.01 sec)

mysql> SELECT * FROM salarybudgets;
+---------+
| total   |
+---------+
| 8000.00 |
+---------+
1 row in set (0.00 sec)

mysql>
```

THANK YOU