

Práctica TRIGGERS

Realizar las practicas que se muestran en los siguientes enlaces:

1. <https://www.neoguias.com/como-crear-y-utilizar-triggers-en-mysql/>

Se crea la base de datos y se añade la tabla Productos que contendrá tres registros

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> CREATE DATABASE base_ejemplo;
Query OK, 1 row affected (0.20 sec)

mysql> USE base_ejemplo;
Database changed
mysql> CREATE TABLE Productos(Id INT NOT NULL AUTO_INCREMENT, Nombre VARCHAR(20) NOT NULL, Coste FLOAT NOT NULL DEFAULT
0.0, Precio FLOAT NOT NULL DEFAULT 0.0, PRIMARY KEY(Id));
Query OK, 0 rows affected (0.62 sec)

mysql> INSERT INTO Productos(Nombre, Coste, Precio) VALUES("Producto A", 4, 8), ("Producto B", 2, 4), ("Producto C", 40,
80);
Query OK, 3 rows affected (0.26 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql>
```

Se crea el Trigger para antes de un UPDATE

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p

mysql>
mysql> DELIMITER $$
mysql> CREATE TRIGGER ActualizarPrecioProducto
-> BEFORE UPDATE ON Productos
-> FOR EACH ROW
-> BEGIN
-> IF NEW.coste <> OLD.coste
-> THEN
-> SET NEW.precio = NEW.coste * 2;
-> END IF;
-> END$$
Query OK, 0 rows affected (0.26 sec)

mysql> DELIMITER;
-> _
```

Se hace el UPDATE y se activa el TRIGGER

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> UPDATE Productos SET coste = 5 WHERE id = 1;
Query OK, 1 row affected (0.15 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM Productos;
+----+-----+-----+-----+
| Id | Nombre | Coste | Precio |
+----+-----+-----+-----+
| 1  | Producto A | 5     | 10     |
| 2  | Producto B | 2     | 4       |
| 3  | Producto C | 40    | 80      |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql>
```

Se elimina el TRIGGER

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> DROP TRIGGER ActualizarPrecioProducto;
Query OK, 0 rows affected (0.20 sec)

mysql> _
```

2. <https://examples.javacodegeeks.com/core-java/sql/mysql-triggers-tutorial/>

Se crea la base de datos y la tabla Autor. Se crea también el TRIGGER para después del INSERT en la tabla antes mencionada

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> USE jcg_schema;
Database changed
mysql> CREATE TABLE Author(id INT PRIMARY KEY NOT NULL, name VARCHAR(45) NOT NULL, postcount INT NOT NULL);
Query OK, 0 rows affected (0.96 sec)

mysql> CREATE TABLE author_audit (
-> id INT AUTO_INCREMENT PRIMARY KEY,
-> authorId INT NOT NULL,
-> name VARCHAR(50) NOT NULL,
-> changedate DATETIME DEFAULT NULL,
-> action VARCHAR(50) DEFAULT NULL
-> );
Query OK, 0 rows affected (0.43 sec)

mysql> DELIMITER $$
mysql> CREATE TRIGGER after_author_added
-> AFTER INSERT ON Author
-> FOR EACH ROW
-> BEGIN
-> INSERT INTO author_audit
-> SET action = 'insert',
-> authorId = NEW.id,
-> name = NEW.name,
-> changedate = NOW();
-> END$$
Query OK, 0 rows affected (0.17 sec)

mysql> DELIMITER ;
mysql>
```

Se realiza la inserción en la tabla autor y después de esta se activa el TRIGGER.

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> INSERT INTO Author (id, name, postcount) VALUES (7, 'Vyom', 27);
Query OK, 1 row affected (0.11 sec)

mysql> SELECT * FROM author_audit;
+----+-----+-----+-----+-----+
| id | authorId | name | changedate | action |
+----+-----+-----+-----+-----+
| 1 | 7 | Vyom | 2019-11-15 17:23:22 | insert |
+----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql>
```

Se elimina el TRIGGER

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> DROP TRIGGER after_author_added;
Query OK, 0 rows affected (0.18 sec)

mysql>
```

3. <https://www.geeksforgeeks.org/different-types-of-mysql-triggers-with-examples/>

Before Update Trigger:

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> CREATE DATABASE Ejemplo03;
Query OK, 1 row affected (0.16 sec)

mysql> USE Ejemplo03;
Database changed
mysql>
mysql>
mysql> CREATE TABLE Customer(acc_no INTEGER PRIMARY KEY, cust_name VARCAHR(20), avail_balance DECIMAL);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'VARCAHR(20), avail_balance DECIMAL)' at line 1
mysql>
mysql>
mysql>
mysql> CREATE TABLE Customer(acc_no INTEGER PRIMARY KEY, cust_name VARCHAR(20), avail_balance DECIMAL);
Query OK, 0 rows affected (0.61 sec)

mysql> _
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> CREATE TABLE Customer(acc_no INTEGER PRIMARY KEY, cust_name VARCHAR(20), avail_balance DECIMAL);
Query OK, 0 rows affected (0.61 sec)

mysql> CREATE TABLE mini_statement(acc_no INTEGER, avail_balance decimal, FOREIGN KEY(acc_no) REFERENCES Customer(acc_no) ON DELETE CASCADE);
Query OK, 0 rows affected (0.56 sec)

mysql> INSERT INTO Customer VALUES(1000, "Fanny", 7000);
Query OK, 1 row affected (0.14 sec)

mysql> INSERT INTO Customer VALUES(1001, "Peter", 12000);
Query OK, 1 row affected (0.18 sec)

mysql>
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> DELIMITER //
mysql> CREATE TRIGGER update_cus
-> BEFORE UPDATE ON Customer
-> FOR EACH ROW
-> BEGIN
-> INSERT INTO mini_statement VALUES(OLD.acc_no, OLD.avail_balance);
-> end; //
Query OK, 0 rows affected (0.16 sec)

mysql>
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql>
mysql> DELIMITER ;
mysql> UPDATE CUSTOMER SET avail_balance = avail_balance + 3000 WHERE acc_no = 1001;
Query OK, 1 row affected (0.13 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE CUSTOMER SET avail_balance = avail_balance + 3000 WHERE acc_no = 1000;
Query OK, 1 row affected (0.21 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> SELECT * FROM mini_statement;
+-----+-----+
| acc_no | avail_balance |
+-----+-----+
| 1001 | 12000 |
| 1000 | 7000 |
+-----+-----+
2 rows in set (0.00 sec)

mysql> _
```

After Update Trigger:

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> CREATE TABLE micro_statement(acc_no INTEGER, avail_balance DECIMAL, FOREIGN KEY(acc_no) REFERENCES Customer(acc_no) ON DELETE CASCADE);
Query OK, 0 rows affected (0.58 sec)

mysql> INSERT INTO Customer VALUES(1002, "Janitor", 4500);
Query OK, 1 row affected (0.11 sec)

mysql>
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> DELIMITER //
mysql> CREATE TRIGGER update_after
-> AFTER UPDATE ON Customer
-> FOR EACH ROW
-> BEGIN
-> INSERT INTO micro_statement VALUES(NEW.acc_no, NEW.avail_balance);
-> end; //
Query OK, 0 rows affected (0.37 sec)

mysql>
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> DELIMITER ;
mysql> UPDATE Customer SET avail_balance = avail_balance + 1500 WHERE acc_No = 1002;
Query OK, 1 row affected (0.17 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> SELECT * FROM micro_statement;
+-----+-----+
| acc_no | avail_balance |
+-----+-----+
| 1002   |          6000 |
+-----+-----+
1 row in set (0.00 sec)

mysql>
```

Before Insert Trigger:

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
HAR(25), birthday DATE, created_date DATE, created_by VARCHAR(30), CONSTRAINT contacts_pk PRIMARY KEY(contact_id));
Query OK, 0 rows affected (0.74 sec)

mysql> DELIMITER //
mysql> CREATE TRIGGER contacts_before_insert
-> BEFORE INSERT
-> ON CONTACTS FOR EACH ROW
-> BEGIN
-> DECLARE vUser VARCHAR(50);
->
-> -- Find username of person performing INSERT INTO TABLE
-> SELECT USER() INTO vUser;
->
-> -- Update create_date field to current system date
-> SET NEW.created_date = SYSDATE();
->
-> -- Update created_by field to the username of the person performing the INSERT
-> SET NEW.created_by = vUser;
-> end; //
Query OK, 0 rows affected (0.38 sec)

mysql> _
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> INSERT INTO contacts VALUES(1, "Newton", "Enigma", str_to_date("19-08-1999", "%d-%m-%Y"), str_to_date("17-03-2018", "%d-%m-%Y"), "xyz");
Query OK, 1 row affected (0.15 sec)

mysql> SELECT * FROM contacts;
+-----+-----+-----+-----+-----+-----+
| contact_id | last_name | first_name | birthday | created_date | created_by |
+-----+-----+-----+-----+-----+-----+
| 1 | Newton | Enigma | 1999-08-19 | 2019-11-15 | Benjamin@localhost |
+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)

mysql> _
```


After Insert Trigger:

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> create table contacts2 (contact_id int (11) NOT NULL AUTO_INCREMENT,
-> last_name VARCHAR(30) NOT NULL,
-> first_name VARCHAR(25), birthday DATE,
-> CONSTRAINT contacts_pk PRIMARY KEY (contact_id));
Query OK, 0 rows affected (0.56 sec)

mysql> _
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> delimiter //
mysql> create trigger contacts_after_insert
-> after insert
-> on contacts2 for each row
-> begin
-> DECLARE vUser varchar(50);
->
-> -- Find username of person performing the INSERT into table
-> SELECT USER() into vUser;
-> -- Insert record into audit table
-> INSERT into contacts_audit(contact_id, created_date, created_by)
-> VALUES
-> ( NEW.contact_id, SYSDATE(), vUser );
-> END; //
Query OK, 0 rows affected (0.19 sec)

mysql> INSERT INTO Contacts2 VALUES(1, "kumar", "Rupesh", str_to_date("20-06-1999", "%d-%m-%Y"));
-> DELIMITER ;
-> INSERT INTO Contacts2 VALUES(1, "kumar", "Rupesh", str_to_date("20-06-1999", "%d-%m-%Y"));
-> ;
->
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> INSERT INTO Contacts2 VALUES(1, "Kumar", "Rupesh", str_to_date("20-06-1999", "%d-%m-%Y"));
Query OK, 1 row affected (0.11 sec)

mysql> SELECT * FROM contacts_audit;
+-----+-----+-----+
| contact_id | created_date | created_by |
+-----+-----+-----+
|          1 | 2019-11-15  | Benjamin@localhost |
+-----+-----+-----+
1 row in set (0.00 sec)

mysql>
```

Before Delete Trigger:

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql>
mysql> create table contacts3 (contact_id int (11) NOT NULL AUTO_INCREMENT, last_name VARCHAR (30) NOT NULL, first_name
VARCHAR (25), birthday DATE, created_date DATE, created_by VARCHAR(30), CONSTRAINT contacts_pk PRIMARY KEY (contact_id))
;
Query OK, 0 rows affected (0.53 sec)

mysql> create table contacts_audit2 (contact_id integer, deleted_date date, deleted_by varchar(20));
Query OK, 0 rows affected (0.52 sec)

mysql>
```

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p

mysql> delimiter //
mysql> create trigger contacts_before_delete
->      before delete
->      on contacts3 for each row
->      begin
->          DECLARE vUser varchar(50);
->          -- Find username of person performing the DELETE into table
->          SELECT USER() into vUser;
->          -- Insert record into audit table
->          INSERT into contacts_audit2( contact_id, deleted_date, deleted_by) VALUES(OLD.contact_id, SYSDATE(),
vUser );
->      end; //
Query OK, 0 rows affected (0.35 sec)

mysql> DELIMITER ;
mysql> insert into contacts3 values (1, "Bond", "Ruskin", str_to_date ("19-08-1995", "%d-%m-%Y"), str_to_date ("27-04-20
18", "%d-%m-%Y"), "xyz");
Query OK, 1 row affected (0.11 sec)

mysql> delete from contacts3 where last_name="Bond";
Query OK, 1 row affected (0.24 sec)

mysql> SELECT * FROM contacts_audit2;
+-----+-----+-----+
| contact_id | deleted_date | deleted_by |
+-----+-----+-----+
|          1 | 2019-11-15  | Benjamin@localhost |
+-----+-----+-----+
1 row in set (0.00 sec)
```

After Delete Trigger:

```
C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p

mysql>
mysql> create table contacts4 (contact_id int (11) NOT NULL AUTO_INCREMENT, last_name VARCHAR(30) NOT NULL, first_name V
ARCHAR(25), birthday DATE, created_date DATE, created_by VARCHAR (30), CONSTRAINT contacts_pk PRIMARY KEY (contact_id));
Query OK, 0 rows affected (0.63 sec)

mysql> create table contacts_audit3 (contact_id integer, deleted_date date, deleted_by varchar(20));
Query OK, 0 rows affected (0.45 sec)

mysql> -
```

```

C:\WINDOWS\system32\cmd.exe - mysql -u Benjamin -p
mysql> DELIMITER //
mysql> create trigger contacts_after_delete
-> after delete
-> on contacts4 for each row
-> begin
-> DECLARE vUser varchar(50);
-> -- Find username of person performing the DELETE into table
-> SELECT USER() into vUser;
-> -- Insert record into audit table
-> INSERT into contacts_audit3( contact_id, deleted_date, deleted_by) VALUES(OLD.contact_id, SYSDATE(), vUser );
-> end; //
Query OK, 0 rows affected (0.12 sec)

mysql> DELIMITER ;
mysql> insert into contacts4 values(1, "Newton", "Isaac", str_to_date ("19-08-1985", "%d-%m-%Y"), str_to_date ("23-07-20
18", "%d-%m-%Y"), "xyz");
Query OK, 1 row affected (0.12 sec)

mysql> delete from contacts4 where first_name="Isaac";
Query OK, 1 row affected (0.17 sec)

mysql> select * from contacts_audit3;
+-----+-----+-----+
| contact_id | deleted_date | deleted_by |
+-----+-----+-----+
| 1 | 2019-11-15 | Benjamin@localhost |
+-----+-----+-----+
1 row in set (0.00 sec)

mysql>

```