

Assignment :- A8

Database Trigger (All Types: Row level and Statement level triggers, Before and After

Triggers). Write a database trigger on Library table. The System should keep track of the records that are being updated or deleted. The old value of updated or deleted records should be added in Library_Audit table.

Frame the problem statement for writing Database Triggers of all types, in-line with above statement. The problem statement should clearly state the requirements.

```
MariaDB [Library]> create table borrower (rollin int, name
varchar(30), dateofissue date, nameofbook varchar(30), status
char(10));
```

Query OK, 0 rows affected (0.05 sec)

```
MariaDB [Library]> insert borrower values (101, 'abc', '2017-07-16',
'dbms', 'r'), (102, 'abc1', '2017-07-16', 'cn', 'i'), (103, 'abc3',
'2017-07-18', 'toc', 'i'), (104, 'abc4', '2017-07-20', 'ds', 'i'),
(105, 'abc5', '2017-07-23', 'daa', 'r'), (106, 'nisha', '2017-08-10',
'splm', 'r' );
```

Query OK, 6 rows affected (0.01 sec)

Records: 6 Duplicates: 0 Warnings: 0

```
MariaDB [Library]> create table library_audit(rollin int, name
char(10), dateofissue date,
-> nameofbook char(10), status char, ts timestamp);
```

Query OK, 0 rows affected (0.04 sec)

```
MariaDB [Library]> -- After INSERT Trigger
```

```
MariaDB [Library]> delimiter //
```

```
MariaDB [Library]> create table borrower (rollin int, name
varchar(30), dateofissue date, nameofbook varchar(30), status
char(10));
```

Query OK, 0 rows affected (0.05 sec)

```
MariaDB [Library]> insert borrower values (101, 'abc', '2017-07-16',
'dbms', 'r'), (102, 'abc1', '2017-07-16', 'cn', 'i'), (103, 'abc3',
'2017-07-18', 'toc', 'i'), (104, 'abc4', '2017-07-20', 'ds', 'i'),
(105, 'abc5', '2017-07-23', 'daa', 'r'), (106, 'nisha', '2017-08-10',
'splm', 'r' );
```

Query OK, 6 rows affected (0.01 sec)

Records: 6 Duplicates: 0 Warnings: 0

```
MariaDB [Library]> create table library_audit(rollin int, name
char(10), dateofissue date,
-> nameofbook char(10), status char, ts timestamp);
Query OK, 0 rows affected (0.04 sec)
```

```
MariaDB [Library]> -- After INSERT Trigger
MariaDB [Library]> delimiter //
```

```
MariaDB [Library]> create trigger after_insert after insert on
borrower for each row
-> begin
-> insert into library_audit values(new.rollin, new.name,
new.dateofissue,
-> new.nameofbook, new.status, current_timestamp);
-> end;
-> //
```

```
Query OK, 0 rows affected (0.08 sec)
```

```
MariaDB [Library]> select * from borrower //
```

rollin	name	dateofissue	nameofbook	status
101	abc	2017-07-16	dbms	r
102	abc1	2017-07-16	cn	i
103	abc3	2017-07-18	toc	i
104	abc4	2017-07-20	ds	i
105	abc5	2017-07-23	daa	r
106	nisha	2017-08-10	splm	r

```
6 rows in set (0.00 sec)
```

```
MariaDB [Library]> select * from library_audit //
Empty set (0.00 sec)
```

```
MariaDB [Library]> insert into borrower values(107,'ada','2017-08-
10','dbms','i') //
```

```
Query OK, 1 row affected (0.02 sec)
```

```
MariaDB [Library]> select * from borrower //
```

rollin	name	dateofissue	nameofbook	status
101	abc	2017-07-16	dbms	r
102	abc1	2017-07-16	cn	i

103	abc3	2017-07-18	toc	i
104	abc4	2017-07-20	ds	i
105	abc5	2017-07-23	daa	r
106	nisha	2017-08-10	splm	r
107	ada	2017-08-10	dbms	i

7 rows in set (0.00 sec)

MariaDB [Library]> select * from library_audit //

rollin	name	dateofissue	nameofbook	status	ts
--------	------	-------------	------------	--------	----

107	ada	2017-08-10	dbms	i	2017-09-19 05:24:57
-----	-----	------------	------	---	---------------------

1 row in set (0.00 sec)

MariaDB [Library]>

MariaDB [Library]>

MariaDB [Library]> -- After DELETE Trigger

MariaDB [Library]> create trigger after_delete after delete on borrower for each row

-> begin

-> insert into library_audit values(old.rollin, old.name, old.dateofissue,

-> old.nameofbook, old.status, current_timestamp());

-> end ;

-> //

Query OK, 0 rows affected (0.08 sec)

MariaDB [Library]> select * from borrower //

rollin	name	dateofissue	nameofbook	status
101	abc	2017-07-16	dbms	r
102	abc1	2017-07-16	cn	i
103	abc3	2017-07-18	toc	i
104	abc4	2017-07-20	ds	i
105	abc5	2017-07-23	daa	r
106	nisha	2017-08-10	splm	r
107	ada	2017-08-10	dbms	i

7 rows in set (0.00 sec)

MariaDB [Library]> select * from library_audit //

```
+-----+-----+-----+-----+-----+-----+
----+
| rollin | name | dateofissue | nameofbook | status | ts
|
+-----+-----+-----+-----+-----+-----+
----+
| 107 | ada | 2017-08-10 | dbms | i | 2017-09-19
05:24:57 |
+-----+-----+-----+-----+-----+-----+
----+
```

1 row in set (0.00 sec)

MariaDB [Library]> delete from borrower where rollin = 105 //

Query OK, 1 row affected (0.02 sec)

MariaDB [Library]> select * from borrower //

```
+-----+-----+-----+-----+-----+
| rollin | name | dateofissue | nameofbook | status |
+-----+-----+-----+-----+-----+
| 101 | abc | 2017-07-16 | dbms | r |
| 102 | abc1 | 2017-07-16 | cn | i |
| 103 | abc3 | 2017-07-18 | toc | i |
| 104 | abc4 | 2017-07-20 | ds | i |
| 106 | nisha | 2017-08-10 | splm | r |
| 107 | ada | 2017-08-10 | dbms | i |
+-----+-----+-----+-----+-----+
```

6 rows in set (0.00 sec)

MariaDB [Library]> select * from library_audit //

```
+-----+-----+-----+-----+-----+-----+
----+
| rollin | name | dateofissue | nameofbook | status | ts
|
+-----+-----+-----+-----+-----+-----+
----+
| 107 | ada | 2017-08-10 | dbms | i | 2017-09-19
05:24:57 |
| 105 | abc5 | 2017-07-23 | daa | r | 2017-09-19
05:26:51 |
+-----+-----+-----+-----+-----+-----+
----+
```

2 rows in set (0.00 sec)

MariaDB [Library]>

MariaDB [Library]>

MariaDB [Library]>

MariaDB [Library]> -- After UPDATE Trigger

MariaDB [Library]> create trigger after_update after update on
borrower for each row

-> begin

-> insert into library_audit values(new.rollin, new.name,
new.dateofissue,

-> new.nameofbook, new.status, current_timestamp());

-> end ;

-> //

Query OK, 0 rows affected (0.08 sec)

MariaDB [Library]> select * from borrower //

rollin	name	dateofissue	nameofbook	status
101	abc	2017-07-16	dbms	r
102	abc1	2017-07-16	cn	i
103	abc3	2017-07-18	toc	i
104	abc4	2017-07-20	ds	i
106	nisha	2017-08-10	splm	r
107	ada	2017-08-10	dbms	i

6 rows in set (0.00 sec)

MariaDB [Library]> select * from library_audit //

rollin	name	dateofissue	nameofbook	status	ts
107	ada	2017-08-10	dbms	i	2017-09-19 05:24:57
105	abc5	2017-07-23	daa	r	2017-09-19 05:26:51

2 rows in set (0.00 sec)

```
MariaDB [Library]> update borrower set status='r' where
borrower.rollin=104
-> //
```

```
Query OK, 1 row affected (0.04 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
MariaDB [Library]> select * from borrower //
```

rollin	name	dateofissue	nameofbook	status
101	abc	2017-07-16	dbms	r
102	abc1	2017-07-16	cn	i
103	abc3	2017-07-18	toc	i
104	abc4	2017-07-20	ds	r
106	nisha	2017-08-10	splm	r
107	ada	2017-08-10	dbms	i

```
6 rows in set (0.00 sec)
```

```
MariaDB [Library]> select * from library_audit //
```

rollin	name	dateofissue	nameofbook	status	ts
107	ada	2017-08-10	dbms	i	2017-09-19 05:24:57
105	abc5	2017-07-23	daa	r	2017-09-19 05:26:51
104	abc4	2017-07-20	ds	r	2017-09-19 05:28:10

```
3 rows in set (0.00 sec)
```

```
MariaDB [Library]>
```

```
MariaDB [Library]>
```

```
MariaDB [Library]>
```