

ASSIGNMENT NO : 8

NAME:

ROLL NO:

Problem statements: Database trigger (an types:row level and statement level trigger,before and after trigger). 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 be library_audit table.

```
mysql> CREATE DATABASE LIBRARY;  
Query OK, 1 row affected (0.00 sec)
```

```
mysql> USE LIBRARY;  
Database changed
```

```
mysql> CREATE TABLE BORROWER(ROLLNO INT(10),NAME  
VARCHAR(11),DATEOFISSUE DATE,NAMEOFBOOK VARCHAR(10),STATUS  
CHAR(10));  
Query OK, 0 rows affected (0.09 sec)
```

```
mysql> DESC BORROWER;  
+-----+-----+-----+-----+-----+-----+  
| Field      | Type        | Null | Key | Default | Extra |  
+-----+-----+-----+-----+-----+-----+  
| ROLLNO     | int(10)     | YES  |     | NULL    |      |  
| NAME       | varchar(11) | YES  |     | NULL    |      |  
| DATEOFISSUE | date        | YES  |     | NULL    |      |  
| NAMEOFBOOK | varchar(10) | YES  |     | NULL    |      |  
| STATUS     | char(10)    | YES  |     | NULL    |      |  
+-----+-----+-----+-----+-----+-----+  
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO  
BORROWER(ROLLNO,NAME,DATEOFISSUE,NAMEOFBOOK,STATUS)  
-> VALUES  
-> ('101','RAM','2017-06-17','DBMS','R'),  
-> ('102','SHAM','2017-07-20','ISEE','I'),  
-> ('103','SITA','2017-07-15','SE','R'),  
-> ('104','MITA','2017-08-26','TOC','I');  
Query OK, 4 rows affected (0.05 sec)  
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT *FROM BORROWER;  
+-----+-----+-----+-----+-----+  
| ROLLNO | NAME | DATEOFISSUE | NAMEOFBOOK | STATUS |  
+-----+-----+-----+-----+-----+
```

101	RAM	2017-06-17	DBMS	R
102	SHAM	2017-07-20	ISEE	I
103	SITA	2017-07-15	SE	R
104	MITA	2017-08-26	TOC	I

+-----+-----+-----+-----+-----+

4 rows in set (0.00 sec)

```
mysql> CREATE TABLE LIBRARY_AUDIT(ROLLNO INT(10) PRIMARY KEY,NAME
VARCHAR(10),DATEOFISSUE DATE,NAMEOFBOOK VARCHAR(10),STATUS
CHAR(2),TS TIMESTAMP);
Query OK, 0 rows affected (0.10 sec)
```

```
mysql> DESC LIBRARY_AUDIT;
```

Field	Type	Null	Key	Default	Extra
ROLLNO	int(10)	PRI		NULL	
NAME	varchar(10)	YES		NULL	
DATEOFISSUE	date	YES		NULL	
NAMEOFBOOK	varchar(10)	YES		NULL	
STATUS	char(2)	YES		NULL	
TS	timestamp	NO		CURRENT_TIMESTAMP	on update CURRENT_TIMESTAMP

+-----+-----+-----+-----+-----+

6 rows in set (0.00 sec)

```
mysql> DELIMITER //
```

```
mysql> CREATE TRIGGER AFTER_TRIGGER AFTER INSERT ON BORROWER FOR
EACH ROW
BEGIN
INSERT INTO LIBRARY_AUDIT
VALUES(NEW.ROLLNO,NEW.NAME,NEW.DATEOFISSUE,NEW.NAMEOFBOOK,NEW.
STATUS,CURRENT_TIMESTAMP);
END; //
```

Query OK, 0 rows affected (0.11 sec)

```
mysql> SELECT *FROM LIBRARY_AUDIT; //
```

Empty set (0.00 sec)

```
mysql> INSERT INTO BORROWER VALUES('106','GITA','2017-08-27','DBMS','I'); //
```

Query OK, 1 row affected (0.03 sec)

```
mysql> SELECT *FROM BORROWER; //
```

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS
--------	------	-------------	------------	--------

101	RAM	2017-06-17	DBMS	R
102	SHAM	2017-07-20	ISEE	I
103	SITA	2017-07-15	SE	R
104	MITA	2017-08-26	TOC	I
106	GITA	2017-08-27	DBMS	I

5 rows in set (0.00 sec)

```
mysql> SELECT *FROM LIBRARY_AUDIT; //
```

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS	TS
106	GITA	2017-08-27	DBMS	I	2017-09-07 19:37:32

1 row in set (0.00 sec)

```
mysql> CREATE TRIGGER AFTER_DELETE AFTER DELETE ON BORROWER FOR
EACH ROW
BEGIN
INSERT INTO LIBRARY_AUDIT
VALUES(OLD.ROLLNO,OLD.NAME,OLD.DATEOFISSUE,OLD.NAMEOFBOOK,OLD.ST
ATUS,CURRENT_TIMESTAMP);
END; //
```

Query OK, 0 rows affected (0.07 sec)

```
mysql> DELETE FROM BORROWER WHERE ROLLNO=104; //
```

Query OK, 1 row affected (0.05 sec)

```
mysql> SELECT *FROM LIBRARY_AUDIT; //
```

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS	TS
106	GITA	2017-08-27	DBMS	I	2017-09-07 19:37:32
104	MITA	2017-08-26	TOC	I	2017-09-07 19:43:39

2 rows in set (0.01 sec)

```
mysql> CREATE TRIGGER AFTER_UPDATE AFTER UPDATE ON BORROWER FOR
EACH ROW
BEGIN
INSERT INTO LIBRARY_AUDIT
VALUES(NEW.ROLLNO,NEW.NAME,NEW.DATEOFISSUE,NEW.NAMEOFBOOK,NEW.
STATUS,CURRENT_TIMESTAMP);
END; //
```

Query OK, 0 rows affected (0.12 sec)

```
mysql> UPDATE BORROWER SET STATUS='R' WHERE BORROWER.ROLLNO='102';
//
```

Query OK, 1 row affected (0.07 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> SELECT *FROM LIBRARY_AUDIT; //

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS	TS
106	GITA	2017-08-27	DBMS	I	2017-09-07 19:37:32
104	MITA	2017-08-26	TOC	I	2017-09-07 19:43:39
102	SHAM	2017-07-20	ISEE	R	2017-09-07 19:47:03

3 rows in set (0.00 sec)

mysql> DELIMITER //

mysql> CREATE TRIGGER BEFORE_INSERT BEFORE INSERT ON BORROWER FOR
EACH ROW
BEGIN
INSERT INTO LIBRARY_AUDIT
VALUES(NEW.ROLLNO,NEW.NAME,NEW.DATEOFISSUE,NEW.NAMEOFBOOK,NEW.
STATUS,CURRENT_TIMESTAMP);
END; //

Query OK, 0 rows affected (0.11 sec)

mysql> INSERT INTO BORROWER VALUES('107','DEV','2017-09-17','TOC','R'); //

Query OK, 1 row affected (0.10 sec)

mysql> SELECT *FROM BORROWER; //

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS
101	RAM	2017-06-17	DBMS	R
102	SHAM	2017-07-20	ISEE	R
103	SITA	2017-07-15	SE	R
106	GITA	2017-08-27	DBMS	I
107	DEV	2017-09-17	TOC	R

5 rows in set (0.00 sec)

mysql> SELECT *FROM LIBRARY_AUDIT; //

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS	TS
106	GITA	2017-08-27	DBMS	I	2017-09-07 19:37:32
104	MITA	2017-08-26	TOC	I	2017-09-07 19:43:39
102	SHAM	2017-07-20	ISEE	R	2017-09-07 19:47:03
107	DEV	2017-09-17	TOC	R	2017-09-07 19:48:16
107	DEV	2017-09-17	TOC	R	2017-09-07 19:48:16

5 rows in set (0.00 sec)

```
mysql> CREATE TRIGGER BEFORE_DELETE BEFORE DELETE ON BORROWER
FOR EACH ROW
BEGIN
INSERT INTO LIBRARY_AUDIT
VALUES(OLD.ROLLNO,OLD.NAME,OLD.DATEOFISSUE,OLD.NAMEOFBOOK,OLD.ST
ATUS,CURRENT_TIMESTAMP);
END; //
```

Query OK, 0 rows affected (0.08 sec)

```
mysql> DELETE FROM BORROWER WHERE ROLLNO=103; //
```

Query OK, 1 row affected (0.05 sec)

```
mysql> SELECT *FROM BORROWER; //
```

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS
101	RAM	2017-06-17	DBMS	R
102	SHAM	2017-07-20	ISEE	R
106	GITA	2017-08-27	DBMS	I
107	DEV	2017-09-17	TOC	R

4 rows in set (0.00 sec)

```
mysql> SELECT *FROM LIBRARY_AUDIT; //
```

ROLLNO	NAME	DATEOFISSUE	NAMEOFBOOK	STATUS	TS
106	GITA	2017-08-27	DBMS	I	2017-09-07 19:37:32
104	MITA	2017-08-26	TOC	I	2017-09-07 19:43:39
102	SHAM	2017-07-20	ISEE	R	2017-09-07 19:47:03
107	DEV	2017-09-17	TOC	R	2017-09-07 19:48:16
107	DEV	2017-09-17	TOC	R	2017-09-07 19:48:16
103	SITA	2017-07-15	SE	R	2017-09-07 19:51:03
103	SITA	2017-07-15	SE	R	2017-09-07 19:51:03

7 rows in set (0.00 sec)

```
mysql> CREATE TRIGGER BEFORE_UPDATE BEFORE UPDATE ON BORROWER
FOR EACH ROW
BEGIN
INSERT INTO LIBRARY_AUDIT
VALUES(NEW.ROLLNO,NEW.NAME,NEW.DATEOFISSUE,NEW.NAMEOFBOOK,NEW.
STATUS,CURRENT_TIMESTAMP);
END; //
```

Query OK, 0 rows affected (0.07 sec)

```
mysql> UPDATE BORROWER SET STATUS='R' WHERE BORROWER.ROLLNO='106';
//
```

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

```
mysql> SELECT *FROM BORROWER; //
```

```
+-----+-----+-----+-----+-----+
| ROLLNO | NAME | DATEOFISSUE | NAMEOFBOOK | STATUS |
+-----+-----+-----+-----+-----+
| 101 | RAM | 2017-06-17 | DBMS | R |
| 102 | SHAM | 2017-07-20 | ISEE | R |
| 106 | GITA | 2017-08-27 | DBMS | R |
| 107 | DEV | 2017-09-17 | TOC | R |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> SELECT *FROM LIBRARY_AUDIT; //
```

```
+-----+-----+-----+-----+-----+-----+
| ROLLNO | NAME | DATEOFISSUE | NAMEOFBOOK | STATUS | TS |
+-----+-----+-----+-----+-----+-----+
| 106 | GITA | 2017-08-27 | DBMS | I | 2017-09-07 19:37:32 |
| 104 | MITA | 2017-08-26 | TOC | I | 2017-09-07 19:43:39 |
| 102 | SHAM | 2017-07-20 | ISEE | R | 2017-09-07 19:47:03 |
| 107 | DEV | 2017-09-17 | TOC | R | 2017-09-07 19:48:16 |
| 107 | DEV | 2017-09-17 | TOC | R | 2017-09-07 19:48:16 |
| 103 | SITA | 2017-07-15 | SE | R | 2017-09-07 19:51:03 |
| 103 | SITA | 2017-07-15 | SE | R | 2017-09-07 19:51:03 |
| 106 | GITA | 2017-08-27 | DBMS | R | 2017-09-07 19:53:25 |
| 106 | GITA | 2017-08-27 | DBMS | R | 2017-09-07 19:53:25 |
+-----+-----+-----+-----+-----+-----+
9 rows in set (0.00 sec)
```
