**ASSIGNMENT 7**

**Problem statement :** 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.

**Code :**

mysql> create database library;

Query OK, 1 row affected (0.07 sec)

mysql> use library;

Database changed

mysql> create table borrower (rollin int, name varchar(30), dateofissue date, nameofbook varchar(30), status char(10));

Query OK, 0 rows affected (0.28 sec)

mysql> insert borrower values (101, 'ash', '2017-07-16', 'dbms', 'r'), (102, 'gary', '2017-07-16', 'cn', 'i'), (103,'alain', '2017-07-18', 'toc', 'i'), (104, 'tobias', '2017-07-20', 'ds', 'i'), (105, 'paul', '2017-07-23', 'daa', 'r'), (106, 'brock', '2017-08-10', 'splm', 'r' );

Query OK, 6 rows affected (0.05 sec)

Records: 6 Duplicates: 0 Warnings: 0

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | i |

| 105 | paul | 2017-07-23 | daa | r |

| 106 | brock | 2017-08-10 | splm | r |

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

6 rows in set (0.00 sec)

mysql> create table library\_audit(rollin int, name char(10), dateofissue date, nameofbook char(10), status char, ts timestamp);

Query OK, 0 rows affected (0.41 sec)

mysql> -- After INSERT Trigger

mysql> create trigger after\_insert after insert on borrower for each row insert into library\_audit values(new.rollin, new.name, new.dateofissue,new.nameofbook, new.status, current\_timestamp);

Query OK, 0 rows affected (0.95 sec)

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | i |

| 105 | paul | 2017-07-23 | daa | r |

| 106 | brock | 2017-08-10 | splm | r |

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

6 rows in set (0.00 sec)

mysql> select \* from library\_audit;

Empty set (0.00 sec)

mysql> insert into borrower values(107,'satoshi','2017-08-10','dbms','i');

Query OK, 1 row affected (0.39 sec)

mysql> select \* from library\_audit;

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

| rollin | name | dateofissue | nameofbook | status | ts |

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

| 107 | satoshi | 2017-08-10 | dbms | i | 2022-09-02 12:02:09 |

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

1 row in set (0.01 sec)

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | i |

| 105 | paul | 2017-07-23 | daa | r |

| 106 | brock | 2017-08-10 | splm | r |

| 107 | satoshi | 2017-08-10 | dbms | i |

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

7 rows in set (0.00 sec)

mysql> -- After DELETE Trigger

mysql> create trigger after\_delete after delete on borrower for each row insert into library\_audit values(old.rollin, old.name, old.dateofissue,old.nameofbook, old.status, current\_timestamp());

Query OK, 0 rows affected (0.17 sec)

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | i |

| 105 | paul | 2017-07-23 | daa | r |

| 106 | brock | 2017-08-10 | splm | r |

| 107 | satoshi | 2017-08-10 | dbms | i |

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

7 rows in set (0.00 sec)

mysql> select \* from library\_audit;

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

| rollin | name | dateofissue | nameofbook | status | ts |

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

| 107 | satoshi | 2017-08-10 | dbms | i | 2022-09-02 12:02:09 |

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

1 row in set (0.00 sec)

mysql> delete from borrower where rollin = 105;

Query OK, 1 row affected (0.14 sec)

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | i |

| 106 | brock | 2017-08-10 | splm | r |

| 107 | satoshi | 2017-08-10 | dbms | i |

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

6 rows in set (0.00 sec)

mysql> select \* from library\_audit;

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

| rollin | name | dateofissue | nameofbook | status | ts |

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

| 107 | satoshi | 2017-08-10 | dbms | i | 2022-09-02 12:02:09 |

| 105 | paul | 2017-07-23 | daa | r | 2022-09-02 12:03:56 |

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

2 rows in set (0.00 sec)

mysql> -- After UPDATE Trigger

mysql> create trigger after\_update after update on borrower for each row insert into library\_audit values(new.rollin, new.name, new.dateofissue,new.nameofbook, new.status, current\_timestamp());

Query OK, 0 rows affected (0.22 sec)

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | i |

| 106 | brock | 2017-08-10 | splm | r |

| 107 | satoshi | 2017-08-10 | dbms | i |

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

6 rows in set (0.00 sec)

mysql> select \* from library\_audit;

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

| rollin | name | dateofissue | nameofbook | status | ts |

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

| 107 | satoshi | 2017-08-10 | dbms | i | 2022-09-02 12:02:09 |

| 105 | paul | 2017-07-23 | daa | r | 2022-09-02 12:03:56 |

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

2 rows in set (0.00 sec)

mysql> update borrower set status='r' where borrower.rollin=104;

Query OK, 1 row affected (0.14 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from borrower;

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

| rollin | name | dateofissue | nameofbook | status |

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

| 101 | ash | 2017-07-16 | dbms | r |

| 102 | gary | 2017-07-16 | cn | i |

| 103 | alain | 2017-07-18 | toc | i |

| 104 | tobias | 2017-07-20 | ds | r |

| 106 | brock | 2017-08-10 | splm | r |

| 107 | satoshi | 2017-08-10 | dbms | i |

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

6 rows in set (0.01 sec)

mysql> select \* from library\_audit;

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

| rollin | name | dateofissue | nameofbook | status | ts |

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

| 107 | satoshi | 2017-08-10 | dbms | i | 2022-09-02 12:02:09 |

| 105 | paul | 2017-07-23 | daa | r | 2022-09-02 12:03:56 |

| 104 | tobias | 2017-07-20 | ds | r | 2022-09-02 12:05:28 |

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

3 rows in set (0.00 sec)