**SEHEJ BAKSHI DBMS Lab 15/09/2020**

**Assignment No. 8**

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.

1. **Create Tables and Enter Values:**

mysql> create table books(accno int, title varchar(20), author varchar(20), publisher varchar(20), count int);

Query OK, 0 rows affected (0.77 sec)

mysql> create table lib\_audit(accno int, title varchar(20), author varchar(20), publisher varchar(20), count int, action varchar(20));

Query OK, 0 rows affected (0.81 sec)

mysql> insert into books values

-> (1001, 'cn', 'acn', 'pcn', 5),

-> (1002, 'dbms', 'adbms', 'pdbms', 10),

-> (1003, 'isee', 'aisee', 'pisee', 13),

-> (1004, 'sepm', 'asepm', 'psepm', 7),

-> (1005, 'toc', 'atoc', 'ptoc', 20);

Query OK, 5 rows affected (0.13 sec)

Records: 5 Duplicates: 0 Warnings: 0

mysql> select \* from books;

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

| accno | title | author | publisher | count |

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

| 1001 | cn | acn | pcn | 5 |

| 1002 | dbms | adbms | pdbms | 10 |

| 1003 | isee | aisee | pisee | 13 |

| 1004 | sepm | asepm | psepm | 7 |

| 1005 | toc | atoc | ptoc | 20 |

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

5 rows in set (0.00 sec)

mysql> select \* from lib\_audit;

Empty set (0.00 sec)

1. **After Tigger (delete):**

mysql> delimiter //

mysql> create trigger before\_book\_delete

-> after delete on books

-> for each row

-> begin

-> insert into lib\_audit

-> set action='delete',

-> accno = old.accno,

-> title = old.title,

-> author = old.author,

-> publisher = old.publisher,

-> count = old.count;

-> end;

-> //

Query OK, 0 rows affected (0.30 sec)

mysql> delimiter ;

mysql> select \* from books;

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

| accno | title | author | publisher | count |

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

| 1001 | cn | acn | pcn | 5 |

| 1002 | dbms | adbms | pdbms | 10 |

| 1003 | isee | aisee | pisee | 13 |

| 1004 | sepm | asepm | psepm | 7 |

| 1005 | toc | atoc | ptoc | 20 |

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

5 rows in set (0.07 sec)

mysql> delete from books where accno=1001;

Query OK, 1 row affected (0.11 sec)

mysql> select \* from books;

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

| accno | title | author | publisher | count |

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

| 1002 | dbms | adbms | pdbms | 10 |

| 1003 | isee | aisee | pisee | 13 |

| 1004 | sepm | asepm | psepm | 7 |

| 1005 | toc | atoc | ptoc | 20 |

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

4 rows in set (0.00 sec)

mysql> select \* from lib\_audit;

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

| accno | title | author | publisher | count | action |

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

| 1001 | cn | acn | pcn | 5 | delete |

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

1 row in set (0.00 sec)

1. **Before Tigger (update):**

mysql> delimiter //

mysql> create trigger before\_book\_update

-> before update on books

-> for each row

-> begin

-> insert into lib\_audit

-> set action = 'update',

-> accno = new.accno,

-> title = new.title,

-> author = new.author,

-> publisher = new.publisher,

-> count = new.count;

-> end;

-> //

Query OK, 0 rows affected (0.19 sec)

mysql> delimiter ;

mysql> update books set count=20 where accno=1002;

Query OK, 1 row affected (0.14 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from books;

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

| accno | title | author | publisher | count |

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

| 1002 | dbms | adbms | pdbms | 20 |

| 1003 | isee | aisee | pisee | 13 |

| 1004 | sepm | asepm | psepm | 7 |

| 1005 | toc | atoc | ptoc | 20 |

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

4 rows in set (0.00 sec)

mysql> select \* from lib\_audit;

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

| accno | title | author | publisher | count | action |

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

| 1001 | cn | acn | pcn | 5 | delete |

| 1002 | dbms | adbms | pdbms | 20 | update |

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

2 rows in set (0.00 sec)

mysql> delimiter //

mysql> create trigger before\_book\_update2

-> before update on books

-> for each row

-> begin

-> insert into lib\_audit

-> set action = 'update1',

-> accno = old.accno,

-> title = old.title,

-> author = old.author,

-> publisher = old.publisher,

-> count = old.count;

-> end;

-> //

Query OK, 0 rows affected (0.14 sec)

mysql> delimiter ;

mysql> select \* from books;

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

| accno | title | author | publisher | count |

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

| 1002 | dbms | adbms | pdbms | 20 |

| 1003 | isee | aisee | pisee | 13 |

| 1004 | sepm | asepm | psepm | 7 |

| 1005 | toc | atoc | ptoc | 20 |

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

4 rows in set (0.00 sec)

mysql> update books set count = 8 where accno = 1003;

Query OK, 1 row affected (0.17 sec)

Rows matched: 1 Changed: 1 Warnings: 0

mysql> select \* from books;

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

| accno | title | author | publisher | count |

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

| 1002 | dbms | adbms | pdbms | 20 |

| 1003 | isee | aisee | pisee | 8 |

| 1004 | sepm | asepm | psepm | 7 |

| 1005 | toc | atoc | ptoc | 20 |

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

4 rows in set (0.00 sec)

mysql> select \* from lib\_audit;

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

| accno | title | author | publisher | count | action |

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

| 1001 | cn | acn | pcn | 5 | delete |

| 1002 | dbms | adbms | pdbms | 20 | update |

| 1003 | isee | aisee | pisee | 8 | update |

| 1003 | isee | aisee | pisee | 13 | update1 |

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

4 rows in set (0.00 sec)

1. **List View of all Tiggers:**

mysql> show triggers from assignment15sep\G;

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Trigger: before\_book\_update

Event: UPDATE

Table: books

Statement: begin

insert into lib\_audit

set action = 'update',

accno = new.accno,

title = new.title,

author = new.author,

publisher = new.publisher,

count = new.count;

end

Timing: BEFORE

Created: 2020-09-15 09:33:01.21

sql\_mode: STRICT\_TRANS\_TABLES,NO\_ENGINE\_SUBSTITUTION

Definer: root@localhost

character\_set\_client: cp850

collation\_connection: cp850\_general\_ci

Database Collation: utf8mb4\_0900\_ai\_ci

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 2. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Trigger: before\_book\_update2

Event: UPDATE

Table: books

Statement: begin

insert into lib\_audit

set action = 'update1',

accno = old.accno,

title = old.title,

author = old.author,

publisher = old.publisher,

count = old.count;

end

Timing: BEFORE

Created: 2020-09-15 09:45:17.03

sql\_mode: STRICT\_TRANS\_TABLES,NO\_ENGINE\_SUBSTITUTION

Definer: root@localhost

character\_set\_client: cp850

collation\_connection: cp850\_general\_ci

Database Collation: utf8mb4\_0900\_ai\_ci

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 3. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Trigger: before\_book\_delete

Event: DELETE

Table: books

Statement: begin

insert into lib\_audit

set action='delete',

accno = old.accno,

title = old.title,

author = old.author,

publisher = old.publisher,

count = old.count;

end

Timing: AFTER

Created: 2020-09-15 09:27:56.98

sql\_mode: STRICT\_TRANS\_TABLES,NO\_ENGINE\_SUBSTITUTION

Definer: root@localhost

character\_set\_client: cp850

collation\_connection: cp850\_general\_ci

Database Collation: utf8mb4\_0900\_ai\_ci

3 rows in set (0.00 sec)

ERROR:

No query specified