Assignment 7

1. 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. Note: Instructor will Frame the problem statement for writing PL/SQL block for all types of Triggers in line with above statement.

1)create library table

>>create table library(book\_id int primary key, title varchar(20), author varchar(20), edition int,no\_of\_copies int);

\*\*insert records

insert into library values(1,"TOC","vvRichard",4,5);

insert into library values(2,"CN","Foruzan",2,6);

insert into library values(3,"ISEE","Rahul De",6,10);

insert into library values(4,"DBMS","Silberchatz",6,8);

insert into library values(5,"SEPM","Pressman",7,4);

insert into library values(6,"DS","Horitzsahani",9,6);

insert into library values(7,"Java","Powell",8,7);

insert into library values(8,"Learning Scala","Swartz",7,4);

insert into library values(9,"Cpp","Bjarne",7,2);

insert into library values(10,"python","Thoma",5,9);

2)create library-audit table

>>create table library\_audit(B\_id int, Title varchar(20), Author varchar(20), Edition int,no\_of\_copies int, date\_of\_mod date, type\_of\_operation varchar(30));

3)create a trigger before update on the library table

>>DELIMITER $

create trigger Lib\_Trigger

before update on library for each row

BEGIN

declare op varchar(10);

set op="updated";

insert into library\_audit values(old.book\_id,old.title,old.author,old.edition,old.no\_of\_copies,curdate(), op);

END $

DELIMITER ;

4)Verifying trigger

Updating library table will automatically make entry in library\_audit

update library set author="Mishra" where book\_id=1;

select \* from library\_audit;

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

| B\_id | Title | Author | Edition | no\_of\_copies | date\_of\_mod | type\_of\_operation |

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

| 1 | TOC | vvRichard | 4 | 5 | 2023-10-21 | updated |

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5)update library set no\_of\_copies=10 where book\_id=3;

select \* from library\_audit;

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

| B\_id | Title | Author | Edition | no\_of\_copies | date\_of\_mod | type\_of\_operation |

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

| 1 | TOC | vvRichard | 4 | 5 | 2023-10-21 | updated |

| 3 | ISEE | Rahul De | 6 | 10 | 2023-10-21 | updated |

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6)Now, we will create a database trigger on the Library table for before delete.

DELIMITER $

create trigger Lib\_Trigger\_Del

before delete on library for each row

BEGIN

declare op varchar(10);

set op="deleted";

insert into library\_audit values (old.book\_id,old.title,old.author,old.edition,old.no\_of\_copies,

curdate(), op);

END $

DELIMITER ;

7)Verifying trigger

Deleting a tuple from library table will automatically make entry in library\_audit

delete from library where book\_id=2;

mysql> select \* from library;

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

| book\_id | title | author | edition | no\_of\_copies |

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

| 1 | TOC | Mishra | 4 | 5 |

| 3 | ISEE | Rahul De | 6 | 10 |

| 4 | DBMS | Silberchatz | 6 | 8 |

| 5 | SEPM | Pressman | 7 | 4 |

| 6 | DS | Horitzsahani | 9 | 6 |

| 7 | Java | Powell | 8 | 7 |

| 8 | Learning Scala | Swartz | 7 | 4 |

| 9 | Cpp | Bjarne | 7 | 2 |

| 10 | python | Thoma | 5 | 9 |

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

9 rows in set (0.00 sec)

mysql> select \* from library\_audit;

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

| B\_id | Title | Author | Edition | no\_of\_copies | date\_of\_mod | type\_of\_operation |

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

| 1 | TOC | vvRichard | 4 | 5 | 2023-10-21 | updated |

| 3 | ISEE | Rahul De | 6 | 10 | 2023-10-21 | updated |

| 2 | CN | Foruzan | 2 | 6 | 2023-10-21 | deleted |

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