

- 1. 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.**

- i. Creating the 'library' Table.**

> create table library(book_id INT PRIMARY KEY, title VARCHAR(20), author VARCHAR(20), edition INT, copiesCnt INT);

- ii. Creating the 'library_audit' Table.**

> create table library_audit(book_id INT PRIMARY KEY, title VARCHAR(20), author VARCHAR(20), edition INT, copiesCnt INT, date_of_modification DATE, type_of_operation VARCHAR(20));

- iii. Inserting values into 'library' Table.**

> insert into library values(1, "To Kill a Mockingbird", "Harper Lee", 1, 5);
> insert into library values(2, "1984", "George Orwell", 2, 3);
> insert into library values(3, "Pride and Prejudice", "Jane Austen", 1, 3);
> insert into library values(4, "The Lord of the Rings", "J.R.R. Tolkien", 5, 5);
> insert into library values(5, "The Great Gatsby", "F. Scott Fitzgerald", 1, 5);
> insert into library values(6, "The Catcher in the Rye", "J.D. Salinger", 2, 5);
> insert into library values(7, "To Kill a Mockingbird", "Harper Lee", 1, 8);
> insert into library values(8, "Wings of the Fire", "Dr. A.P.J. A. Kalam", 1, 10);

iv. Displaying 'library' Table.

```
> select * from library;
```

book_id	title	author	edition	copiesCnt
1	To Kill a Mockingbird	Harper Lee	1	5
2	1984	George Orwell	2	3
3	Pride and Prejudice	Jane Austen	1	3
4	The Lord of the Rings	J.R.R. Tolkien	5	5
5	The Great Gatsby	F. Scott Fitzgerald	1	5
6	The Catcher in the Rye	J.D. Salinger	2	5
7	To Kill a Mockingbird	Harper Lee	1	8
8	Wings of the Fire	Dr. A.P.J. A. Kalam	1	10

v. Trigger for monitoring UPDATE Operation.

```
> create trigger updateT
-> after UPDATE on library
-> FOR EACH ROW
-> BEGIN
-> insert into library_audit(old.book_id, old.title, old.author, old.edition,
old.copiesCnt, curdate(), 'UPDATE');
-> end;
-> //
```

vi. Trigger for monitoring DELETE Operation.

```
> create trigger deleteT
-> after DELETE on library
-> FOR EACH ROW
-> insert into library_audit values(old.book_id, old.title, old.author, old.edition,
old.copiesCnt, curdate(), 'DELETE');
-> end;
-> //
```

vii. 'library_audit' Table before Modifications.

```
> select * from library_audit;
Empty set (0.00 sec)
```

viii. Performing modifications on 'library' table such as Update & Delete records.

```
> update library set copiesCnt = 2 where book_id = 3;
> update library set title = "Wings of Fire" where book_id = 8;
> delete from library where book_id = 5;
```

> update library set edition = 3 where book_id = 7;

ix. 'library_audit' Table after Modifications.

> select * from library_audit;

book_id	title	author	edition	copiesCnt	date_of_modification	type_of_operation
2	1984	George Orwell	2	3	2023-10-03	UPDATE
3	Pride and Prejudice	Jane Austen	1	3	2023-10-03	UPDATE
5	The Great Gatsby	F. Scott Fitzgerald	1	5	2023-10-03	DELETE
8	Wings of the Fire	Dr. A.P.J. A. Kalam	1	10	2023-10-03	UPDATE

```
mysql> select * from library_audit;
```

book_id	title	author	edition	copiesCnt	date_of_modification	type_of_operation
2	1984	George Orwell	2	3	2023-10-03	UPDATE
3	Pride and Prejudice	Jane Austen	1	3	2023-10-03	UPDATE
5	The Great Gatsby	F. Scott Fitzgerald	1	5	2023-10-03	DELETE
8	Wings of the Fire	Dr. A.P.J. A. Kalam	1	10	2023-10-03	UPDATE

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