

9.Statement: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 inLibrary_Audit table.Triggers in line with above statement.

```
SQL> CREATE TABLE Library (BookID INT PRIMARY KEY, Title VARCHAR(255), Author VARCHAR(255),PublishedYear INT );
```

Table created.

```
SQL> CREATE TABLE Library_Audit ( AuditID INT PRIMARY KEY,BookID INT,Title VARCHAR(255),Author VARCHAR(255), PublishedYear INT, Action VARCHAR(10), ChangeDate DATE);
```

Table created.

```
SQL> INSERT INTO Library VALUES (1, 'Sample Book 1', 'Author 1', 2020);
```

1 row created.

```
SQL> INSERT INTO Library VALUES (2, 'Sample Book 2', 'Author 2', 2018);
```

1 row created.

```
SQL> select*from Library;
```

```
-----  
BOOKID | TITLE   |  AUTHOR  | PUBLISHEDYEAR  
-----  
1      | Sample Book1      | Author   | 2020  
2      | Sample Book 2     | Author 2 | 2018
```

```
SQL> ed
```

Wrote file afiedt.buf

```
1CREATE OR REPLACE TRIGGER Library_Audit_Trigger
```

```
2AFTER DELETE OR UPDATE ON Library
```

```

3FOR EACH ROW
4BEGIN
5 IF UPDATING THEN
6 INSERT INTO Library_Audit (AuditID, BookID, Title, Author, PublishedYear, Action, ChangeDate)
7 VALUES
(Library_Audit_Sequence.NEXTVAL, :OLD.BookID, :OLD.Title, :OLD.Author, :OLD.PublishedYear, 'UPDATE',
SYSTIMESTAMP);
8 END IF;

9 IF DELETING THEN
10 INSERT INTO Library_Audit (AuditID, BookID, Title, Author, PublishedYear, Action, ChangeDate)
12 VALUES
(Library_Audit_Sequence.NEXTVAL, :OLD.BookID, :OLD.Title, :OLD.Author, :OLD.PublishedYear, 'DELETE',
SYSTIMESTAMP);
13 END IF;
14* END;
15 /

```

Trigger created.

SQL> UPDATE Library

```

2 SET Title = 'Updated Book Title'

```

```

3 WHERE BookID = 1;

```

1 row updated.

SQL> DELETE FROM Library

```

2 WHERE BookID = 2;

```

1 row deleted.

```
SQL> select * from Library_Audit;
```

AUDITID	BOOKID	TITLE	AUTHOR	PUBLISHEDYEAR	ACTION	CHANGEDATE
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1	1	Sample Book 1	Author 1	2020	UPDATE	19-OCT-23
2	2	Sample Book 2	Author 2	2018	DELETE	19-OCT-23