



## **EXPERIMENT - 7**

**Student Name:** Hiten Mehta

**Branch:** BE-CSE

**Semester:** 5<sup>th</sup>

**Subject Name:** ADBMS

**UID:** 23BCS14058

**Section/Group:** KRG\_1-B

**Date of Performance:** 28/10/2025

**Subject Code:** 23CSP-333

**1. Aim:** --- Medium Level Problem ---

a) **REQUIREMENTS: DESIGN A TRIGGER WHICH:**

1. WHENEVER THERE IS A INSERTION ON STUDENT TABLE THEN, THE CURRENTLY INSERTED OR DELETED ROW SHOULD BE PRINTED AS IT AS ON THE OUTPUT CONSOLE WINDOW.

--- Hard Level Problem ---

b) **DESIGN A PORSTGRESQL TRIGGERS THAT:**

1. Whenever a new employee is inserted in tbl\_employee, a record should be added to tbl\_employee\_audit like:  
"Employee name <emp\_name> has been added at <current\_time>"
2. Whenever an employee is deleted from tbl\_employee, a record should be added to tbl\_employee\_audit like:  
"Employee name <emp\_name> has been deleted at <current\_time>"
3. The solution must use PostgreSQL triggers.

**2. Platform Used:**

Microsoft SQL Server Management Studio

### 3. SQL Code:

a) CREATE TABLE student (  
    id SERIAL PRIMARY KEY,  
    name VARCHAR(50),  
    age INT,  
    class VARCHAR(20)  
);

```
CREATE OR REPLACE FUNCTION fn_student_audit()  
RETURNS TRIGGER  
LANGUAGE plpgsql  
AS  
$$  
BEGIN  
    IF TG_OP = 'INSERT' THEN  
        RAISE NOTICE 'Inserted Row -> ID: %, Name: %, Age: %, Class: %',  
                      NEW.id, NEW.name, NEW.age, NEW.class;  
        RETURN NEW;  
  
    ELSIF TG_OP = 'DELETE' THEN  
        RAISE NOTICE 'Deleted Row -> ID: %, Name: %, Age: %, Class: %',  
                      OLD.id, OLD.name, OLD.age, OLD.class;  
        RETURN OLD;  
    END IF;  
  
    RETURN NULL;  
END;  
$;
```

```
CREATE TRIGGER trg_student_audit  
AFTER INSERT OR DELETE  
ON student  
FOR EACH ROW  
EXECUTE FUNCTION fn_student_audit();
```

```
INSERT INTO student (name, age, class)  
VALUES ('Amit Sharma', 20, 'BCA');
```



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```
INSERT INTO student (name, age, class)
```

```
VALUES ('Priya Singh', 21, 'BSc');
```

```
DELETE FROM student WHERE name = 'Amit Sharma';
```

## OUTPUT-

NOTICE: Inserted Row -> ID: 1, Name: Amit Sharma, Age: 20, Class: BCA

NOTICE: Inserted Row -> ID: 2, Name: Priya Singh, Age: 21, Class: BSc

NOTICE: Deleted Row -> ID: 1, Name: Amit Sharma, Age: 20, Class: BCA

```
b) CREATE TABLE tbl_employee (  
    emp_id SERIAL PRIMARY KEY,  
    emp_name VARCHAR(100) NOT NULL,  
    emp_salary NUMERIC  
);
```

```
CREATE TABLE tbl_employee_audit (  
    sno SERIAL PRIMARY KEY,  
    message TEXT  
);
```

```
CREATE OR REPLACE FUNCTION audit_employee_changes()  
RETURNS TRIGGER  
LANGUAGE plpgsql  
AS  
$$  
BEGIN
```

```
    IF TG_OP = 'INSERT' THEN  
        INSERT INTO tbl_employee_audit(message)  
        VALUES ('Employee name ' || NEW.emp_name || ' has been added at ' || NOW());  
        RETURN NEW;  
    ELSIF TG_OP = 'DELETE' THEN
```



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```
INSERT INTO tbl_employee_audit(message)
VALUES ('Employee name ' || OLD.emp_name || ' has been deleted at ' || NOW());
RETURN OLD;
END IF;
RETURN NULL;
END;
$$;
```

```
CREATE TRIGGER trg_employee_audit
AFTER INSERT OR DELETE
ON tbl_employee
FOR EACH ROW
EXECUTE FUNCTION audit_employee_changes();
```

```
INSERT INTO tbl_employee(emp_name, emp_salary) VALUES ('Aman', 50000);
DELETE FROM tbl_employee WHERE emp_name = 'Aman';
SELECT * FROM tbl_employee_audit;
```

## OUTPUT-

sno	message
1	Employee name Aman has been added at 2025-11-04 03:52:10.326481+00
2	Employee name Aman has been deleted at 2025-11-04 03:52:10.329438+00

(2 rows)