Experiment 7

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Subject Name: Advanced Database and Management System **Subject Code: 23CSP-333**

1. Aim:

[MEDIUM] Design a Trigger such that whenever there is an insertion on student table then currently inserted or deleted row should be printed as it is on the output console window.

[HARD] Design a Postgres Trigger that (i) 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>. Do the same for deletion operation.

2. Tools Used: pgAdmin4

3. Code:

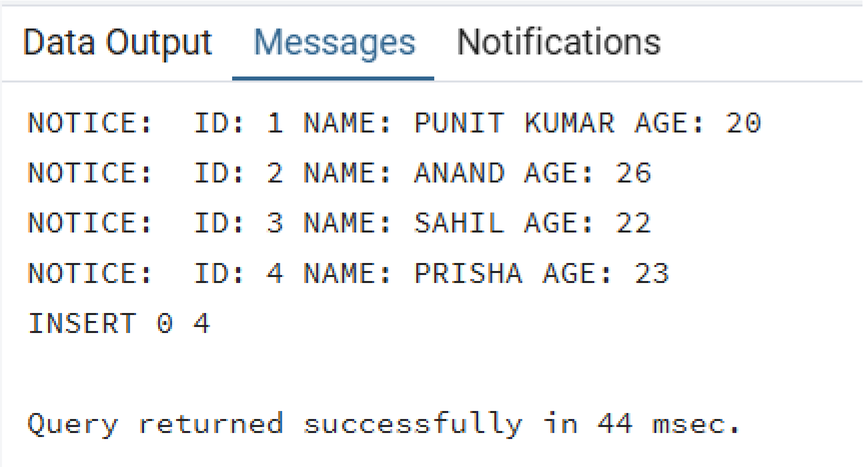
```
-- MEDIUM
CREATE TABLE TBL_STUDENT
(
    UID SERIAL flRIMARY KEY,
    NAME VARCHAR(20),
    AGE INT
);

INSERT INTO TBL_STUDENT(NAME, AGE)
VALUES
    ('flUNIT KUMAR', 20),
    ('ANAND', 26),
    ('SAHIL', 22),
    ('flRISHA', 23);
```

```
CREATE OR REflLACE FUNCTION FN_TRG_STUDENT()
RETURNS TRIGGER
LANGUAGE  plpgsql
$$
BEGIN
    IF TG_Ofl = 'INSERT' THEN
          RAISE NOTICE 'ID: % NAME: % AGE: %', NEW.UID,
NEW.NAME, NEW.AGE;
          RETURN NEW;

    ELSIF TG_Ofl = 'DELETE' THEN
          RAISE NOTICE 'ID: % NAME: % AGE: %', OLD.UID,
OLD.NAME, OLD.AGE;
          RETURN OLD;

    END IF;

    RETURN NULL;
END;
$$;


CREATE OR REflLACE TRIGGER TRG_STUDENT
AFTER INSERT OR DELETE
ON TBL_STUDENT
EXECUTE  FUNCTION  FN_TG_STUDENT();

----------------- HARD ------------------------------

CREATE OR REflLACE FUNCTION audit_employee_changes()
RETURNS TRIGGER
LANGUAGE plpgsql
AS
$$
BEGIN
     IF TG_Ofl = 'INSERT' THEN
          INSERT INTO tbl_employee_audit(message)
          VALUES ('Employee name ' || NEW.emp_name || ' has
been added at ' || NOW());
          RETURN NEW;

     ELSIF TG_Ofl = 'DELETE' THEN
```

```
            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
ONtbl_employee
FOR EACH ROW
EXECUTE    FUNCTION    audit_employee_changes();


--TESTING THE TRIGGER
-- Insert an employee
INSERT INTO tbl_employee(emp_name, emp_salary) VALUES
('flunit', 50000);

-- Delete an employee
DELETE FROM tbl_employee WHERE emp_name = 'flunit';

-- Check audit log
SELECT * FROM tbl_employee_audit;
```

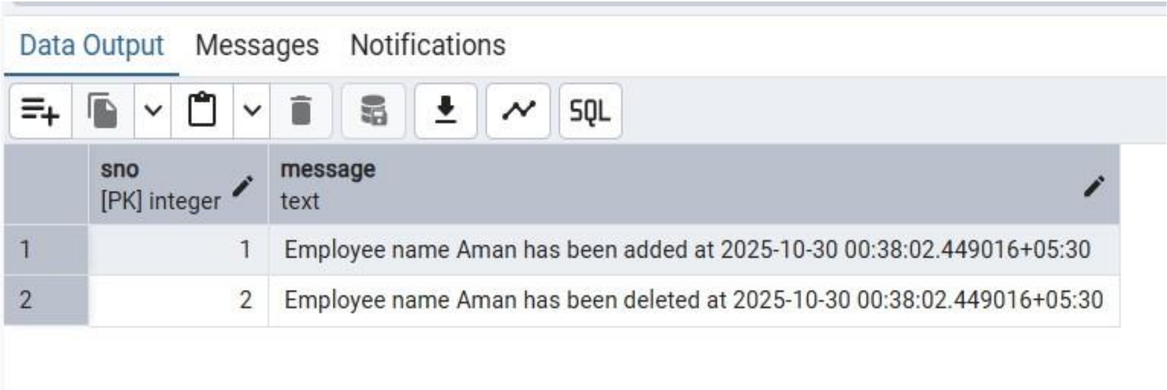
4. Output:

[MEDIUM]



```
NOTICE:  ID: 1 NAME: PUNIT KUMAR AGE: 20
NOTICE:  ID: 2 NAME: ANAND AGE: 26
NOTICE:  ID: 3 NAME: SAHIL AGE: 22
NOTICE:  ID: 4 NAME: PRISHA AGE: 23
INSERT 0 4

Query returned successfully in 44 msec.
```

[HARD]



	sno [PK] integer	message text
1	1	Employee name Aman has been added at 2025-10-30 00:38:02.449016+05:30
2	2	Employee name Aman has been deleted at 2025-10-30 00:38:02.449016+05:30

5. Learning Outcomes:

- Understand the concept of Database triggers – Learn how triggers automatically execute a function in response to database events like INSERT, DELETE etc.
- Implement Trigger Function using PLPGSQL.
- Differentiate between BEFORE and AFTER Triggers.
- Gained hands on experience for real life Trigger Applications.