Experiment 7

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Branch: CSE Semester: 5 Subject Section/Group: 23BCS_KRG-1/A

Name: Advanced Database and DateofPerformance:16/08/25

Management System SubjectCode: 23CSP-333

1. Aim:

[MEDIUM]Designa Triggersuch 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 PRIMARY KEY,
NAME VARCHAR(20),
AGE INT
);

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

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```
CREATE OR REPLACE FUNCTION FN TRG STUDENT()
RETURNS TRIGGER
LANGUAGE plpgsql
$$
BEGIN
   IF TG OP = 'INSERT' THEN
        RAISE NOTICE 'ID: % NAME: % AGE: %', NEW.UID,
NEW.NAME, NEW.AGE;
        RETURN NEW;
   ELSIF TG OP = 'DELETE' THEN
        RAISE NOTICE 'ID: % NAME: % AGE: %', OLD.UID,
OLD.NAME, OLD.AGE;
        RETURN OLD;
   END IF:
   RETURN NULL;
END;
$$;
CREATE OR REPLACE TRIGGER TRG STUDENT
AFTER INSERT OR DELETE
ON TBL STUDENT
EXECUTE FUNCTION FN TG STUDENT();
----- HARD -----
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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```
INTOtbl employee_audit(message)
         INSER
                ('Employeename ' || OLD.emp_name || ' has
         Т
been deletedatie
                    ||NOW());
         RETURN OLD;
    ENDIF;
    RETURN NULL;
END:
$$
CREATETRIGGER trg employee audit
AFTER INSERT ORDELETE
ON tbl employee FOREACH
ROW
EXECUTEFUNCTIONaudit employee changes();
-- TESTING THE TRIGGER
-- Insert an employee
INSERT INTO tbl employee(emp name, emp salary) VALUES
('Punit', 50000);
-- Delete an employee
DELETE FROMtbl employee
                            WHERE emp name = 'Punit';
-- Check audit log
SELECT *FROM tbl employee audit;
```



4. Output:

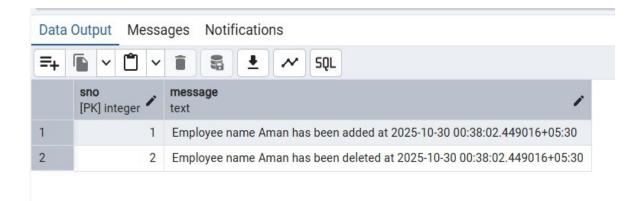
[MEDIUM]

```
Data Output Messages Notifications

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]



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.