



PES UNIVERSITY EC CAMPUS DBMS LAB WEEK 9-10

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SECTION: E

PROBLEM STATEMENT : SQL TRIGGERS AND FUNCTIONS

1. Create an employee table which contains employee details and the department he works for. Create another table department consisting of dname and number of employees. Write triggers to increment or decrement the number of employees in a department table when the record in the employee table is inserted or deleted respectively.

```
postgres=# \c company301
psql (14.0, server 11.13)
You are now connected to database "company301" as user "postgres".
company301=# CREATE TABLE EMPLOYEE(NAME VARCHAR(30),SSN VARCHAR(20) NOT NULL,GENDER CHAR,DNAME VARCHAR(20),PRIMARY KEY(SSN));
CREATE TABLE
company301=#
```

```
company301=# CREATE TABLE DEPARTMENT(DNAME VARCHAR(20),TIMES INT DEFAULT 0,PRIMARY KEY(DNAME));
CREATE TABLE
company301=# ALTER TABLE EMPLOYEE ADD CONSTRAINT FKEY_DNAME FOREIGN KEY(DNAME) REFERENCES DEPARTMENT(DNAME);
ALTER TABLE
company301=#
```

```
company301=# CREATE FUNCTION F1()
RETURNS TRIGGER
LANGUAGE PLPGSQL AS
$$
BEGIN
UPDATE DEPARTMENT SET TIMES=TIMES+1 WHERE NEW.DNAME=DEPARTMENT.DNAME;
RETURN NEW;
END;
$$;
CREATE FUNCTION
company301=#
```

```
company301=# CREATE TRIGGER F11
AFTER INSERT ON EMPLOYEE
FOR EACH ROW
EXECUTE PROCEDURE F1();
CREATE TRIGGER
company301=# |
```

```
CREATE TRIGGER
company301=# INSERT INTO DEPARTMENT VALUES('RESEARCH',0);
INSERT 0 1
company301=# INSERT INTO DEPARTMENT VALUES('DATA SCIENCE',0);
INSERT 0 1
company301=# SELECT * FROM DEPARTMENT;
   dname   | times
-----+-----
 RESEARCH  |      0
DATA SCIENCE |      0
(2 rows)

company301=# |
```

```
company301=# INSERT INTO EMPLOYEE VALUES('RAM','123','M','RESEARCH')
INSERT INTO EMPLOYEE VALUES('SHYAM','124','M','RESEARCH');
INSERT INTO EMPLOYEE VALUES('SITA','125','F','RESEARCH');
INSERT INTO EMPLOYEE VALUES('SK','126','M','DATA SCIENCE');
INSERT INTO EMPLOYEE VALUES('PK','145','M','DATA SCIENCE');
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
INSERT 0 1
company301=# SELECT * FROM EMPLOYEE;
 name | ssn | gender |   dname
-----+-----+-----+-----
  RAM | 123 | M      | RESEARCH
 SHYAM | 124 | M      | RESEARCH
  SITA | 125 | F      | RESEARCH
   SK | 126 | M      | DATA SCIENCE
   PK | 145 | M      | DATA SCIENCE
(5 rows)

company301=# |
```

```
company301=# SELECT * FROM DEPARTMENT;
```

| dname | times |
|--------------|-------|
| RESEARCH | 3 |
| DATA SCIENCE | 2 |

```
(2 rows)
```

```
company301=# CREATE FUNCTION F2()
RETURNS TRIGGER
LANGUAGE PLPGSQL
AS $$
BEGIN
UPDATE DEPARTMENT SET TIMES=TIMES-1 WHERE OLD.DNAME=DEPARTMENT.DNAME;
RETURN OLD;
END;
$$;
CREATE FUNCTION
company301=#
```

```
company301=# CREATE TRIGGER F22 BEFORE DELETE
ON EMPLOYEE FOR EACH ROW
EXECUTE PROCEDURE F2();
CREATE TRIGGER
company301=#
```

```
company301=# DELETE FROM EMPLOYEE WHERE SSN='123';
DELETE FROM EMPLOYEE WHERE SSN='126';
DELETE 1
DELETE 1
company301=#
```

DELETE 1

[company301=# SELECT * FROM EMPLOYEE;

| name | ssn | gender | dname |
|-------|-----|--------|--------------|
| SHYAM | 124 | M | RESEARCH |
| SITA | 125 | F | RESEARCH |
| PK | 145 | M | DATA SCIENCE |

(3 rows)

[company301=# SELECT * FROM DEPARTMENT;

| dname | times |
|--------------|-------|
| RESEARCH | 2 |
| DATA SCIENCE | 1 |

(2 rows)

company301=# |

2. Create an order_item table which contains details like name, quantity and unit price of every item purchased. Create an order summary table that contains number of items and total price. Create triggers to update entry in order summary whenever an item is inserted or deleted in the order item table.

```
company301=# CREATE TABLE ORDER_ITEM(NAME VARCHAR(20) NOT NULL,QUANTITY INT,PRICE INT,ID VARCHAR(10) NOT NULL,PRIMARY KEY(ID));
CREATE TABLE
company301=# CREATE TABLE SUMMARY_TABLE(ITEM_COUNT INT,PRICE INT);
CREATE TABLE
company301=#
```

```
company301=# CREATE FUNCTION F11()
RETURNS TRIGGER LANGUAGE PLPGSQL
AS $$
BEGIN
UPDATE SUMMARY_TABLE SET ITEM_COUNT=ITEM_COUNT+1,PRICE=PRICE+NEW.QUANTITY*NEW.PRICE;
RETURN NEW;
END;
$$;
CREATE FUNCTION
company301=#
```

```
company301=# CREATE TRIGGER F111
AFTER INSERT
ON ORDER_ITEM
FOR EACH ROW
[EXECUTE PROCEDURE F11();
CREATE TRIGGER
company301=#
```

```

company301=# INSERT INTO SUMMARY_TABLE VALUES(0,0);
INSERT 0 1
company301=# INSERT INTO ORDER_ITEM VALUES('MANGO',3,200,'FRUIT1');
INSERT INTO ORDER_ITEM VALUES('APPLE',5,1000,'FRUIT2');
INSERT 0 1
INSERT 0 1
company301=# SELECT * FROM ORDER_ITEM;
 name | quantity | price | id
-----+-----+-----+---
 MANGO |         3 |    200 | FRUIT1
 APPLE |         5 |   1000 | FRUIT2
(2 rows)

company301=# SELECT * FROM SUMMARY_TABLE;
 item_count | price
-----+-----
          2 |  5600
(1 row)

company301=#

```