

DBMS Laboratory

UE19CS304

5th Semester, Academic Year 2021-22

Week #: 9 - Functions and Triggers

Date: 26/11/2021

Name : SUMUKH RAJU BHAT	SRN : PES1UG19CS519	Section : H
----------------------------	------------------------	----------------

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=# create database week9_cs519;
CREATE DATABASE
postgres=# \c week9_cs519;
psql (14.0 (Ubuntu 14.0-1.pgdg20.04+1), server 13.4 (Ubuntu 13.4-4.pgdg20.04+1))
You are now connected to database "week9_cs519" as user "postgres".
```

```
week9_cs519=# CREATE TABLE DEPARTMENT
week9_cs519=# (Depname VARCHAR(15) NOT NULL,
week9_cs519=# No_of_emp INT,
week9_cs519=# PRIMARY KEY (Depname)
week9_cs519=# );
CREATE TABLE
```

```
week9_cs519=# CREATE TABLE EMPLOYEE
week9_cs519=# (Fname VARCHAR(15) NOT NULL ,
week9_cs519=# Minit CHAR,
week9_cs519=# Lname VARCHAR(15) NOT NULL,
week9_cs519=# Ssn CHAR(9) NOT NULL,
week9_cs519=# Bdate DATE,
week9_cs519=# Address VARCHAR(30),
week9_cs519=# Gender CHAR,
week9_cs519=# Salary DECIMAL(10,2),
week9_cs519=# Dname VARCHAR(15) NOT NULL,
week9_cs519=# PRIMARY KEY (Ssn),
week9_cs519=# FOREIGN KEY (Dname) REFERENCES DEPARTMENT(Depname)
week9_cs519=# );
```

```

week9_cs519=# FOREIGN KEY (Dname) REFERENCES DEPARTMENT(Depname)
week9_cs519=# );INSERT into DEPARTMENT values('Research', 4);
CREATE TABLE
INSERT 0 1
week9_cs519=# INSERT into DEPARTMENT values('Administration', 3);
INSERT 0 1
week9_cs519=# INSERT into DEPARTMENT values('Headquarters', 1);
INSERT 0 1
week9_cs519=# 

```

```

week9_cs519=# INSERT into EMPLOYEE values ('James','E','Borg', '888665555','1937-11-10','450 Stone, Houston,TX', 'M',55000, 'Headquarters');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('John','B','Smith','123456789','1965-01-09','731 Fondren,Houston,TX', 'M',30000, 'Research');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('Franklin','T','Wong','333445555','1955-12-08','638 voss,Houston,TX', 'M',40000, 'Research');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('Alicia','J','Zelaya','999887777','1968-01-19','3321 Castle, Spring,Tx', 'F',25000, 'Administration');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('Jennifer','S','Wallace','987654321','1941-06-20','291 Berry, Bellaire,Tx', 'F',43000, 'Administration');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('Ramesh','K','Narayan','666884444','1962-09-15','975 Fire Oak, Humble, TX', 'M',38000, 'Research');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('Joyce','A','English','453453453','1972-07-31','5631 Rice,Houston,TX', 'F',25000, 'Research');
INSERT 0 1
week9_cs519=# INSERT into EMPLOYEE values ('Ahmed','V','Jabbar','987987987','1969-03-29','980 Dallas, Houston,TX', 'M',25000, 'Administration')
week9_cs519-# ;
INSERT 0 1
week9_cs519=# 

```

```

week9_cs519=# CREATE FUNCTION INCREMENT_COUNT()
week9_cs519-# RETURNS TRIGGER
week9_cs519-# LANGUAGE PLPGSQL
week9_cs519-# AS $$
week9_cs519$# BEGIN
week9_cs519$# UPDATE DEPARTMENT SET No_of_emp = No_of_emp + 1 WHERE Depname = new.Dname;
week9_cs519$# RETURN NEW;
week9_cs519$# END;
week9_cs519$# $$;
CREATE FUNCTION
week9_cs519=# CREATE FUNCTION DECREMENT_COUNT()
week9_cs519-# RETURNS TRIGGER
week9_cs519-# LANGUAGE PLPGSQL
week9_cs519-# AS $$
week9_cs519$# BEGIN
week9_cs519$# UPDATE DEPARTMENT SET No_of_emp = No_of_emp - 1 WHERE Depname = old.Dname;
week9_cs519$# RETURN NEW;
week9_cs519$# END;
week9_cs519$# $$;
CREATE FUNCTION
week9_cs519=# 

```

```

week9_cs519=# CREATE TRIGGER INC_EMP
week9_cs519-# AFTER INSERT ON EMPLOYEE
week9_cs519-# FOR EACH ROW
week9_cs519-# EXECUTE PROCEDURE INCREMENT_COUNT();
CREATE TRIGGER
week9_cs519=# 

```

```

week9_cs519=# CREATE TRIGGER DEC_EMP
week9_cs519=# AFTER DELETE ON EMPLOYEE
week9_cs519=# FOR EACH ROW
week9_cs519=# EXECUTE PROCEDURE DECREMENT_COUNT();
CREATE TRIGGER
week9_cs519=# 

```

```

week9_cs519=# SELECT * FROM EMPLOYEE;

```

fname	minit	lname	ssn	bdate	address	gender	salary	dname
James	E	Borg	888665555	1937-11-10	450 Stone, Houston,TX	M	55000.00	Headquarters
John	B	Smith	123456789	1965-01-09	731 Fondren,Houston,TX	M	30000.00	Research
Franklin	T	Wong	333445555	1955-12-08	638 voss,Houston,TX	M	40000.00	Research
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring,Tx	F	25000.00	Administration
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire,Tx	F	43000.00	Administration
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	Research
Joyce	A	English	453453453	1972-07-31	5631 Rice,Houston,TX	F	25000.00	Research
Ahmed	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston,TX	M	25000.00	Administration

(8 rows)

```

week9_cs519=# SELECT * FROM DEPARTMENT;

```

depname	no_of_emp
Research	4
Administration	3
Headquarters	1

(3 rows)

```

week9_cs519=# INSERT INTO EMPLOYEE VALUES('Trevor','G','Philips','111222333','1938-01-03','abcd','M',44000,'Research');
INSERT 0 1
week9_cs519=# DELETE FROM EMPLOYEE WHERE ssn='888665555';
DELETE 1

```

```

week9_cs519=# SELECT * FROM EMPLOYEE;

```

fname	minit	lname	ssn	bdate	address	gender	salary	dname
John	B	Smith	123456789	1965-01-09	731 Fondren,Houston,TX	M	30000.00	Research
Franklin	T	Wong	333445555	1955-12-08	638 voss,Houston,TX	M	40000.00	Research
Alicia	J	Zelaya	999887777	1968-01-19	3321 Castle, Spring,Tx	F	25000.00	Administration
Jennifer	S	Wallace	987654321	1941-06-20	291 Berry, Bellaire,Tx	F	43000.00	Administration
Ramesh	K	Narayan	666884444	1962-09-15	975 Fire Oak, Humble, TX	M	38000.00	Research
Joyce	A	English	453453453	1972-07-31	5631 Rice,Houston,TX	F	25000.00	Research
Ahmed	V	Jabbar	987987987	1969-03-29	980 Dallas, Houston,TX	M	25000.00	Administration
Trevor	G	Philips	111222333	1938-01-03	abcd	M	44000.00	Research

(8 rows)

```

week9_cs519=# SELECT * FROM DEPARTMENT;

```

depname	no_of_emp
Administration	3
Research	5
Headquarters	0

(3 rows)

```

week9_cs519=# 

```

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.

```

week9_cs519=# CREATE TABLE ORDER_ITEM
week9_cs519=# (Name VARCHAR(15) NOT NULL ,
week9_cs519=#      Product_id CHAR(3) NOT NULL,
week9_cs519=# Quantity DECIMAL(10,2),
week9_cs519=# Unit_price DECIMAL(10,2),
week9_cs519=# PRIMARY KEY (Product_id)
week9_cs519=# );
CREATE TABLE
week9_cs519=#
week9_cs519=# CREATE TABLE ORDER_SUMMARY
week9_cs519=# (ID INT,
week9_cs519=#      No_of_items DECIMAL(10,2) NOT NULL,
week9_cs519=#      Total_price DECIMAL(10,2),
week9_cs519=# PRIMARY KEY (ID)
week9_cs519=# );
CREATE TABLE
week9_cs519=# 

```

```

week9_cs519=# INSERT into ORDER_ITEM values('Notebook',1,'3',30);
INSERT 0 1
week9_cs519=# INSERT into ORDER_ITEM values('Pen',2,'5',10);
INSERT 0 1
week9_cs519=# INSERT into ORDER_ITEM values('Pencil',3,'1',5);
INSERT 0 1
week9_cs519=# INSERT into ORDER_ITEM values('Brush',4,'2',25);
INSERT 0 1
week9_cs519=# INSERT into ORDER_ITEM values('Soap',5,'5',30);
INSERT 0 1
week9_cs519=#
week9_cs519=# INSERT into ORDER_SUMMARY values(1,16,345);
INSERT 0 1
week9_cs519=# 

```

```

week9_cs519=# CREATE FUNCTION INCREMENT_TOTAL()
week9_cs519=# RETURNS TRIGGER
week9_cs519=# LANGUAGE PLPGSQL
week9_cs519=# AS $$
week9_cs519$# BEGIN
week9_cs519$# UPDATE ORDER_SUMMARY SET Total_price = Total_price + (new.Quantity*new.Unit_price);
week9_cs519$# UPDATE ORDER_SUMMARY SET No_of_items = No_of_items + new.Quantity;
week9_cs519$# RETURN NEW;
week9_cs519$# END;
week9_cs519$# $$;
CREATE FUNCTION
week9_cs519=# 

```



```

week9_cs519=# CREATE FUNCTION DECREMENT_TOTAL()
week9_cs519=# RETURNS TRIGGER
week9_cs519=# LANGUAGE PLPGSQL
week9_cs519=# AS $$
week9_cs519$# BEGIN
week9_cs519$# UPDATE ORDER_SUMMARY SET Total_price = Total_price - (old.Quantity*old.Unit_price);
week9_cs519$# UPDATE ORDER_SUMMARY SET No_of_items = No_of_items - old.Quantity;
week9_cs519$# RETURN NEW;
week9_cs519$# END;
week9_cs519$# $$;
CREATE FUNCTION
week9_cs519=# 

```

```

week9_cs519=# CREATE TRIGGER INC_ORDER
week9_cs519=# AFTER INSERT ON ORDER_ITEM
week9_cs519=# FOR EACH ROW
week9_cs519=# EXECUTE PROCEDURE INCREMENT_TOTAL();
CREATE TRIGGER
week9_cs519=# 

```

```

week9_cs519=# CREATE TRIGGER DEC_ORDER
week9_cs519=# AFTER DELETE ON ORDER_ITEM
week9_cs519=# FOR EACH ROW
week9_cs519=# EXECUTE PROCEDURE DECREMENT_TOTAL();
CREATE TRIGGER
week9_cs519=# 

```

```

week9_cs519=# SELECT * FROM order_item;
  name | product_id | quantity | unit_price
-----+-----+-----+-----
Notebook | 1          | 3.00    | 30.00
Pen      | 2          | 5.00    | 10.00
Pencil   | 3          | 1.00    | 5.00
Brush    | 4          | 2.00    | 25.00
Soap     | 5          | 5.00    | 30.00
(5 rows)

week9_cs519=# SELECT * FROM order_summary;
 id | no_of_items | total_price
----+-----+-----
  1 | 16.00      | 345.00
(1 row)

week9_cs519=# INSERT INTO order_item VALUES('Sprite',6,'2',35);
INSERT 0 1
week9_cs519=# DELETE FROM order_item WHERE product_id='2';
DELETE 1
week9_cs519=# SELECT * FROM order_item;
  name | product_id | quantity | unit_price
-----+-----+-----+-----
Notebook | 1          | 3.00    | 30.00
Pencil   | 3          | 1.00    | 5.00
Brush    | 4          | 2.00    | 25.00
Soap     | 5          | 5.00    | 30.00
Sprite   | 6          | 2.00    | 35.00
(5 rows)

week9_cs519=# SELECT * FROM order_summary;
 id | no_of_items | total_price
----+-----+-----
  1 | 13.00      | 365.00
(1 row)

week9_cs519=# 

```