DBMS LAB
WEEK 9 & 10

PES1UG19CS592
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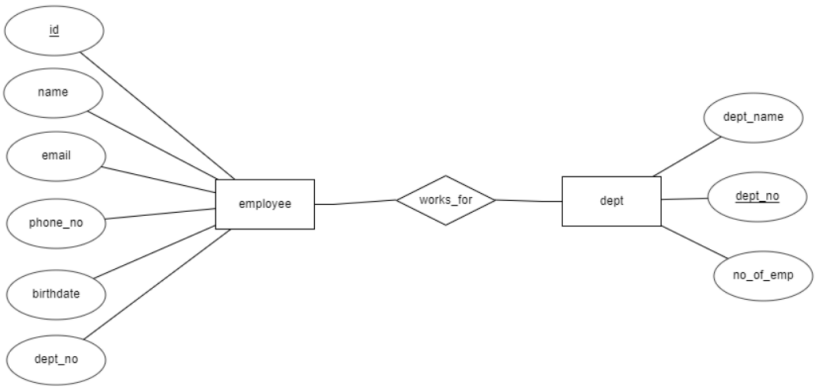
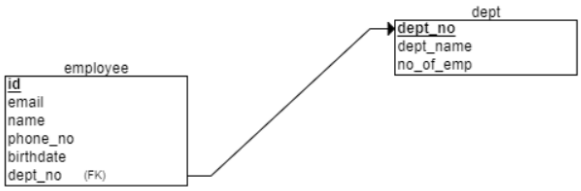
1. Create an employee table which contains employee details and the department he works for. Create another table department consisting of dname and number of employees. Write triggers to increment or decrement the number of employees in a department table when the record in the employee table is inserted or deleted respectively.





CREATE.sql

```
drop database employee;
create database employee;

\c employee

CREATE TABLE dept
(
    dept_name VARCHAR(50) NOT NULL,
    dept_no INT NOT NULL,
    no_of_emp INT NOT NULL,
    PRIMARY KEY(dept_no)
);
```

```
CREATE TABLE employee_details
(
    email VARCHAR(50) NOT NULL,
    name VARCHAR(50) NOT NULL,
    id INT NOT NULL,
    phone_no CHAR(10) NOT NULL,
    birthdate DATE NOT NULL,
    dept_no INT NOT NULL,
    PRIMARY KEY(id),
    FOREIGN KEY(dept_no) REFERENCES dept(dept_no)
);

-- trigger to increase number of employees in the department that the
insertion was made in
CREATE OR REPLACE FUNCTION increment() RETURNS TRIGGER AS
$$
BEGIN
  UPDATE dept set no_of_emp=no_of_emp+1 where new.dept_no=dept.dept_no;
    RETURN new;
END;
$$
language plpgsql;

CREATE TRIGGER increment_number
     AFTER INSERT ON employee_details
     FOR EACH ROW
     EXECUTE PROCEDURE increment();

-- trigger to decrease number of employees in the department that the deletion
was made in
CREATE OR REPLACE FUNCTION decrement() RETURNS TRIGGER AS
$$
BEGIN
  UPDATE dept set no_of_emp=no_of_emp-1 where old.dept_no=dept.dept_no;
    RETURN new;
END;
$$
language plpgsql;

CREATE TRIGGER decrement_number
    AFTER DELETE ON employee_details
    FOR EACH ROW
    EXECUTE PROCEDURE decrement();
```

INSERT.SQL (for testing)

```
\c employee

insert into dept values('CSE',1,0);
```

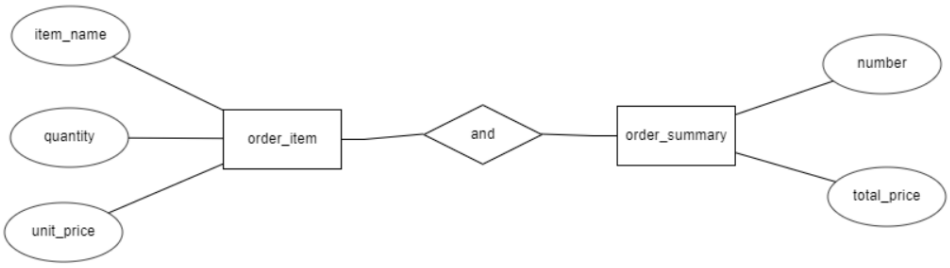
```
insert into dept values('EEE',2,0);
insert into dept values('Mech',3,0);

insert into employee_details values ('abrandino0@hatena.ne.jp', 'Adaline
Brandino', 1, '7524400096', '1997-02-16', 1);
insert into employee_details values ('hflippelli1@ameblo.jp', 'Hatti
Flippelli', 2, '1025817726', '1991-05-10', 2);
insert into employee_details values ('cmacshane2@cyberchimps.com', 'Caddric
MacShane', 3, '2512840590', '1999-07-22', 1);
insert into employee_details values ('cdaldan3@odnoklassniki.ru', 'Cad
Daldan', 4, '6201054879', '1996-11-26', 2);
insert into employee_details values ('scoie4@amazon.de', 'Sylvan Coie', 5,
'3143476971', '1999-03-02', 1);
insert into employee_details values ('wmacdavitt5@1und1.de', 'Wayne
MacDavitt', 6, '3144736168', '1995-05-02', 3);
insert into employee_details values ('fgouldstraw6@miitbeian.gov.cn',
'Faustine Gouldstraw', 7, '8055483283', '1992-04-02', 2);
insert into employee_details values ('rpalister7@huffingtonpost.com', 'Rab
Palister', 8, '9171160664', '1990-12-23', 3);
insert into employee_details values ('bjagels8@quantcast.com', 'Ber Jagels',
9, '6782063205', '1996-06-28', 2);
insert into employee_details values ('cmalthus9@biblegateway.com', 'Cristionna
Malthus', 10, '3232737530', '1996-11-28', 2);
insert into employee_details values ('mincognaa@nature.com', 'Malchy Incogna',
11, '4779964782', '1992-12-08', 2);
insert into employee_details values ('dburgottb@bandcamp.com', 'Deonne
Burgott', 12, '1951883479', '1996-03-17', 3);
insert into employee_details values ('dgrillsc@comcast.net', 'Dalston Grills',
13, '5016132428', '1995-08-21', 1);
insert into employee_details values ('msaddletond@histats.com', 'Milly
Saddleton', 14, '8462521055', '1997-08-09', 2);
insert into employee_details values ('smcgrathe@microsoft.com', 'Sybille
McGrath', 15, '5568667327', '1998-09-23', 2);
insert into employee_details values ('uparminterf@aol.com', 'Upton Parminter',
16, '6411778628', '1995-05-09', 3);
insert into employee_details values ('rphillcockg@eventbrite.com', 'Raquela
Phillcock', 17, '4952090013', '1994-08-22', 2);
insert into employee_details values ('sdarraghh@51.la', 'Sula Darragh', 18,
'2737136188', '1992-11-26', 1);
insert into employee_details values ('cmcgilvrayi@tmall.com', 'Cathie
McGilvray', 19, '6167674075', '1992-11-12', 3);
insert into employee_details values ('fquarlessj@soundcloud.com', 'Farleigh
Quarless', 20, '8318136141', '1995-01-13', 1);
```

```
postgres=# \c employee
You are now connected to database "employee" as user "postgres".
employee=# select * from dept;
 dept_name | dept_no | no_of_emp
-----------+---------+-----------
 EEE       |       2 |         9
 Mech      |       3 |         5
 CSE       |       1 |         6
(3 rows)


employee=# delete from employee_details where dept_no=2;
DELETE 9
employee=# select * from dept;
 dept_name | dept_no | no_of_emp
-----------+---------+-----------
 Mech      |       3 |         5
 CSE       |       1 |         6
 EEE       |       2 |         0
(3 rows)
```

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.



CREATE.sql

```sql
drop database order_details;
create database order_details;

\c order_details

CREATE TABLE order_item
(
  item_name VARCHAR(50) NOT NULL,
  quantity INT NOT NULL,
  unit_price INT NOT NULL
```

```
);

CREATE TABLE order_summary
(
  number_of_items INT NOT NULL,
  total_price INT NOT NULL
);

CREATE OR REPLACE FUNCTION increment() RETURNS TRIGGER AS
$$
BEGIN
  UPDATE order_summary set number_of_items=number_of_items+1;
  UPDATE order_summary set
total_price=total_price+new.quantity*new.unit_price;
    RETURN new;
END;
$$
language plpgsql;

CREATE TRIGGER increment_number
     AFTER INSERT ON order_item
     FOR EACH ROW
     EXECUTE PROCEDURE increment();


CREATE OR REPLACE FUNCTION decrement() RETURNS TRIGGER AS
$$
BEGIN
  UPDATE order_summary set number_of_items=number_of_items-1;
  UPDATE order_summary set total_price=total_price-
old.quantity*old.unit_price;
  RETURN new;
END;
$$
language plpgsql;

CREATE TRIGGER decrement_number
     AFTER DELETE ON order_item
     FOR EACH ROW
     EXECUTE PROCEDURE decrement();

insert into order_summary values(0,0);
```

```
postgres=# \c order_details
You are now connected to database "order_details" as user "postgres".
order_details=# insert into order_item values('test',5,20);
INSERT 0 1
order_details=# insert into order_item values('test2',3,60);
INSERT 0 1
order_details=# select * from order_item;
 item_name | quantity | unit_price
-----------+----------+------------
 test      |        5 |         20
 test2     |        3 |         60
(2 rows)


order_details=# select * from order_summary;
 number_of_items | total_price
-----------------+-------------
               2 |         280
(1 row)


order_details=# delete from order_item where item_name='test';
DELETE 1
order_details=# select * from order_summary;
 number_of_items | total_price
-----------------+-------------
               1 |         180
(1 row)


order_details=#
```

note: the instruction pdf does not specify the exact structure of the order_summary table. It could be implemented in two ways.

1. Each row would have number of items of a particular product (being redundant to the quantity in the order_item table) and the total price would be the quanity*unit price for each item.
2. It is a one row table, where number of items is the total number of items present in the order_item table and total price is the total summation of all item's quantity into their unit price.

   The 2nd has been implemented here.