

DBMS Lab 9 - Triggers and Functions

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1. Triggers for employee and department tables

Creation of database

```
pes1ug19cs213@pes1ug19cs213: ~  
postgres=# create database company;  
CREATE DATABASE  
postgres=# \c company  
You are now connected to database "company" as user "postgres".
```

Creation of employee table

```
company=# create table employee (fname VARCHAR(15) NOT NULL, lname VARCHAR(15) NOT NULL, essn CHAR(10) NOT NULL, dname VARCHAR(15), PRIMARY KEY (essn), FOREIGN KEY (dname) REFERENCES department(dname));  
CREATE TABLE  
company=# \d employee  
Table "public.employee"  
Column | Type | Collation | Nullable | Default  
-----+-----+-----+-----+-----  
fname | character varying(15) | | not null |  
lname | character varying(15) | | not null |  
essn | character(10) | | not null |  
dname | character varying(15) | | |  
Indexes:  
"employee_pkey" PRIMARY KEY, btree (essn)  
Foreign-key constraints:  
"employee_dname_fkey" FOREIGN KEY (dname) REFERENCES department(dname)
```

Creation of department table

```
company=# create table department (dname VARCHAR(15), emp_count INT, PRIMARY KEY
(dname));
CREATE TABLE
company=# \d department
          Table "public.department"
  Column      |      Type       | Collation | Nullable | Default
-----+-----+-----+-----+-----
 dname       | character varying(15) |           | not null |
 emp_count   | integer          |           |          |
Indexes:
    "department_pkey" PRIMARY KEY, btree (dname)
```

Creating increment function and trigger

```
pes1ug19cs213@pes1ug19cs213: ~
company=# create function inc_213() returns trigger as $$
begin
update department set emp_count = emp_count + 1
where department.dname = NEW.dname;
return NEW;
end;
$$ LANGUAGE plpgsql;
CREATE FUNCTION
company=# create trigger increment_213
after insert on employee
for each row
execute procedure inc_213();
CREATE TRIGGER
```

Creating decrement function and trigger

```
company=# create function dec_213() returns trigger as $$
begin
update department set emp_count = emp_count - 1
where department.dname = OLD.dname;
return OLD;
end;
$$ LANGUAGE plpgsql;
CREATE FUNCTION
company=# create trigger decrement_213
after delete on employee
for each row
execute procedure dec_213();
CREATE TRIGGER
```

Inserting values into employee and department tables

```
pes1ug19cs213@pes1ug19cs213: ~  
company=# INSERT into department values ('Poison', 0);  
INSERT into department values ('Serum', 0);  
INSERT 0 1  
INSERT 0 1  
company=# INSERT into employee values ('Henry', 'Jekyll', '1234567890', 'Poison'  
);  
INSERT into employee values ('Edward', 'Hyde', '0123456789', 'Poison');  
INSERT into employee values ('Gabriel', 'Utterson', '8264910382', 'Serum');  
INSERT 0 1  
INSERT 0 1  
INSERT 0 1  
company=#
```

Incremented values displayed in department table

```
pes1ug19cs213@pes1ug19cs213: ~  
company=# select * from department;  
  dname | emp_count  
-----+-----  
 Poison |          2  
  Serum |          1  
(2 rows)
```

Decrementing values displayed in department table

```
pes1ug19cs213@pes1ug19cs213: ~  
company=# delete from employee where dname = 'Serum';  
DELETE 1  
company=# select * from department;  
  dname | emp_count  
-----+-----  
 Poison |          2  
  Serum |          0  
(2 rows)
```