Εργασία Βάσεων

ΑΓΓΕΛΙΚΗ ΑΠΟΣΤΟΛΟΥ Π19015

ΑΝΤΩΝΙΑ ΝΙΚΟΛΕΤΤΑ ΓΙΑΝΝΟΥΛΑΚΗ Π19251

Άσκηση 1:

Σχεδιάσαμε το σχεσιακό σχήμα στο Draw.io και βρίσκεται στο relationalSchema.pdf . Οι εντολές Create Table και τα queries βρίσκονται στο αρχείο E and F.sql . Για τη δημιουργία των δεδομένων χρησιμοποιήθηκε το mockaroo. Επίσης στο φάκελο csv βρίσκονται όλα τα αρχεία .csv .

Στη βάση μας έχουμε τους πίνακες **Drivers**, **Insurance**, **Cars**, **InCat**, **Drivers Address**, **Violations**, **Client** και **Violation participants**. Οι πίνακες είναι 3NF για τους εξής λόγους:

Αρχικά είναι 1NF γιατί:

- Όλες οι στήλες έχουν μοναδικό όνομα
- Η σειρά των στοιχείων δεν έχει σημασία
- Όλα τα κελία έχουν μόνο μία τιμή
- Οι τιμές κάθε στήλης είναι του ίδιου τύπου

Είναι 2NF γιατί:

- Είναι 1NF
- Σε κανένα από τους πινακές μας δεν έχει υπάρξει η ανάγκη να έχουμε παραπάνω από μία στύλη για την ταυτοποίηση μίας

πλειάδας, επομένως τα primary keys μας δεν είναι composite (σύνθετα) και δεν γίνεται να έχουμε Partial Dependency.

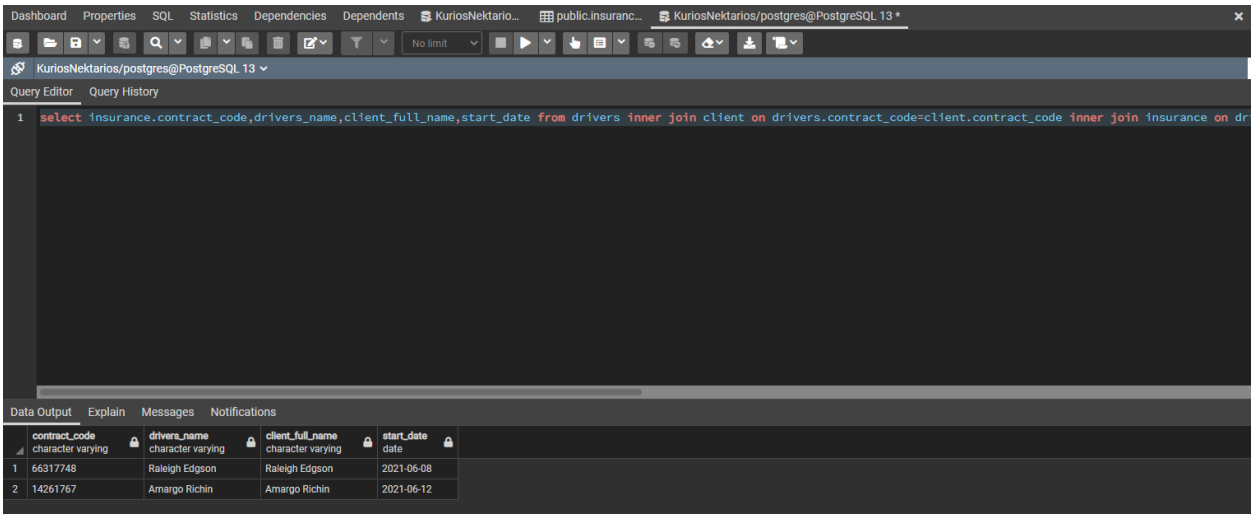
Είναι 3NF γιατί:

- Είναι 2NF
- Κανένα non-prime attribute δεν εξαρτάται από κάποιο άλλο non-prime attribute άρα δεν έχουμε Transitive Dependency.

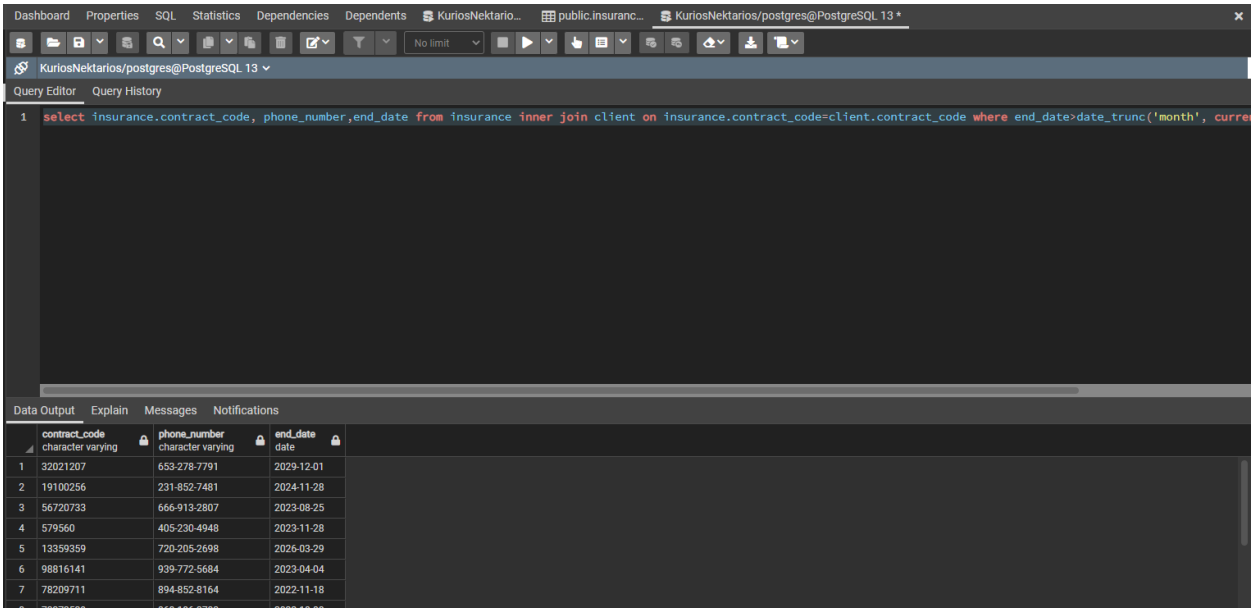
Άσκηση 2:

Τρέχουμε τα queries του ερωτήματος 2 και παρατηρούμε ότι τα αποτελέσματα είναι τα επιθυμητά:

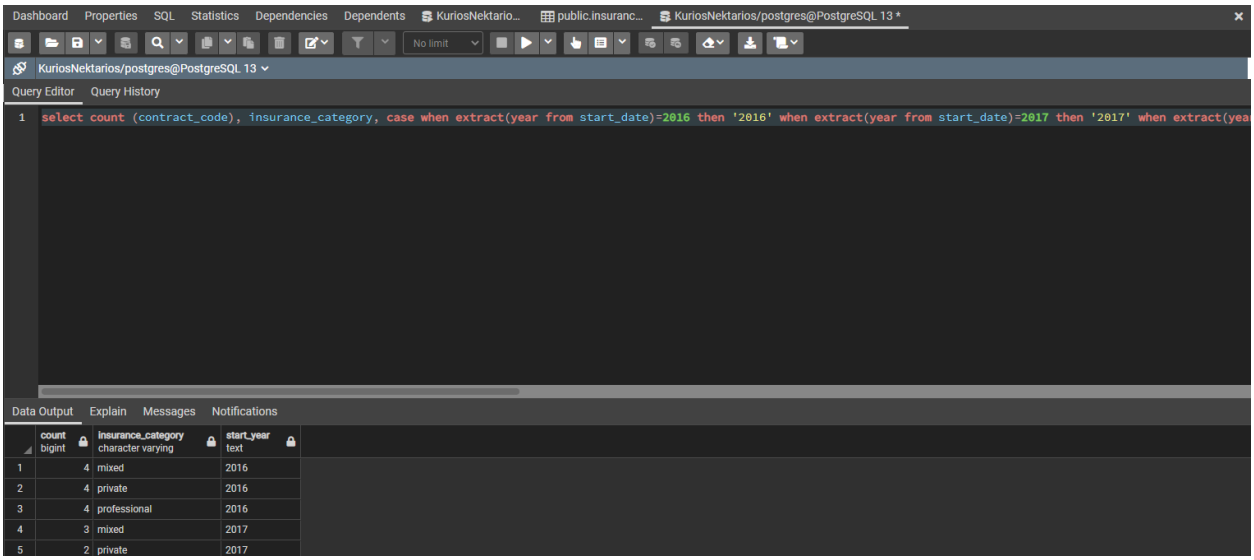
Α)



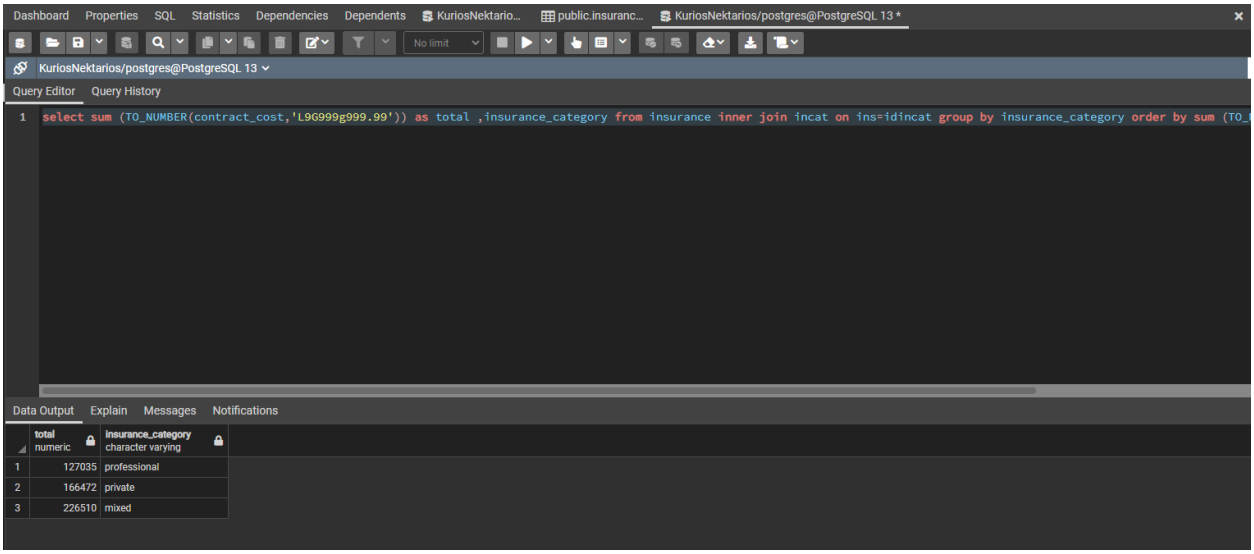
В)


Dashboard Properties SQL Statistics Dependencies Dependents KuriosNektario... public.insuranc... KuriosNektarios/postgres@PostgreSQL 13 *
No limit
KuriosNektarios/postgres@PostgreSQL 13
Query Editor Query History
1 select insurance.contract_code, phone_number,end_date from insurance inner join client on insurance.contract_code=client.contract_code where end_date>date_trunc('month', curre
Data Output Explain Messages Notifications
contract_code character varying
phone_number character varying
end_date date
1 32021207 653-278-7791 2029-12-01
2 19100256 231-852-7481 2024-11-28
3 56720733 666-913-2807 2023-08-25
4 579560 405-230-4948 2023-11-28
5 13359359 720-205-2698 2026-03-29
6 98816141 939-772-5684 2023-04-04
7 78209711 894-852-8164 2022-11-18

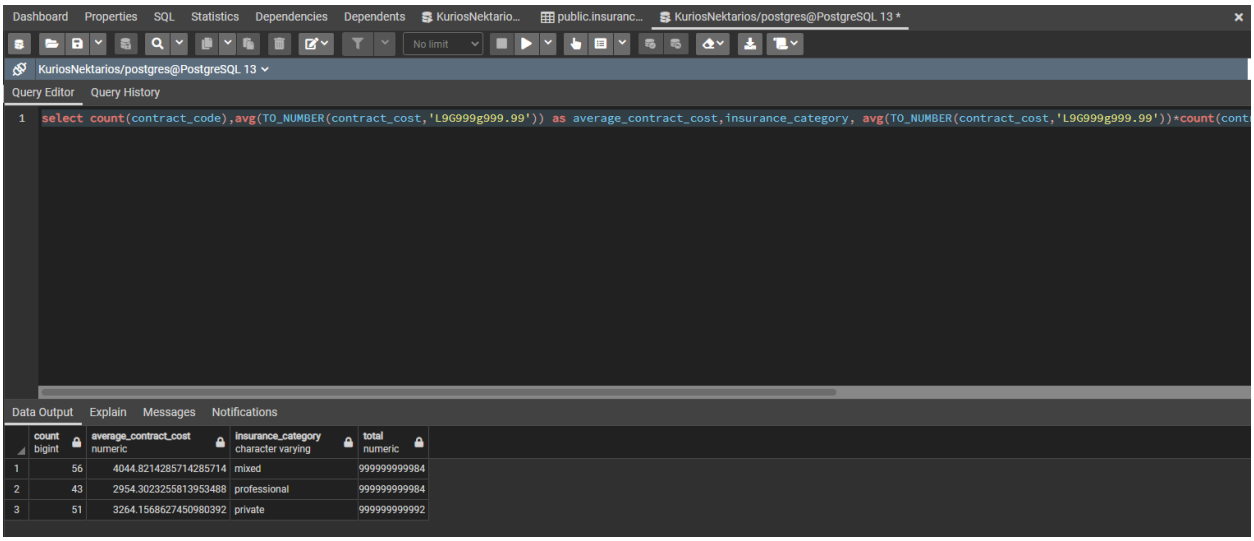
Г)


Dashboard Properties SQL Statistics Dependencies Dependents KuriosNektario... public.insuranc... KuriosNektarios/postgres@PostgreSQL 13 *
No limit
KuriosNektarios/postgres@PostgreSQL 13
Query Editor Query History
1 select count (contract_code), insurance_category, case when extract(year from start_date)=2016 then '2016' when extract(year from start_date)=2017 then '2017' when extract(yea
Data Output Explain Messages Notifications
count bigint
insurance_category character varying
start_year text
1 4 mixed 2016
2 4 private 2016
3 4 professional 2016
4 3 mixed 2017
5 2 private 2017

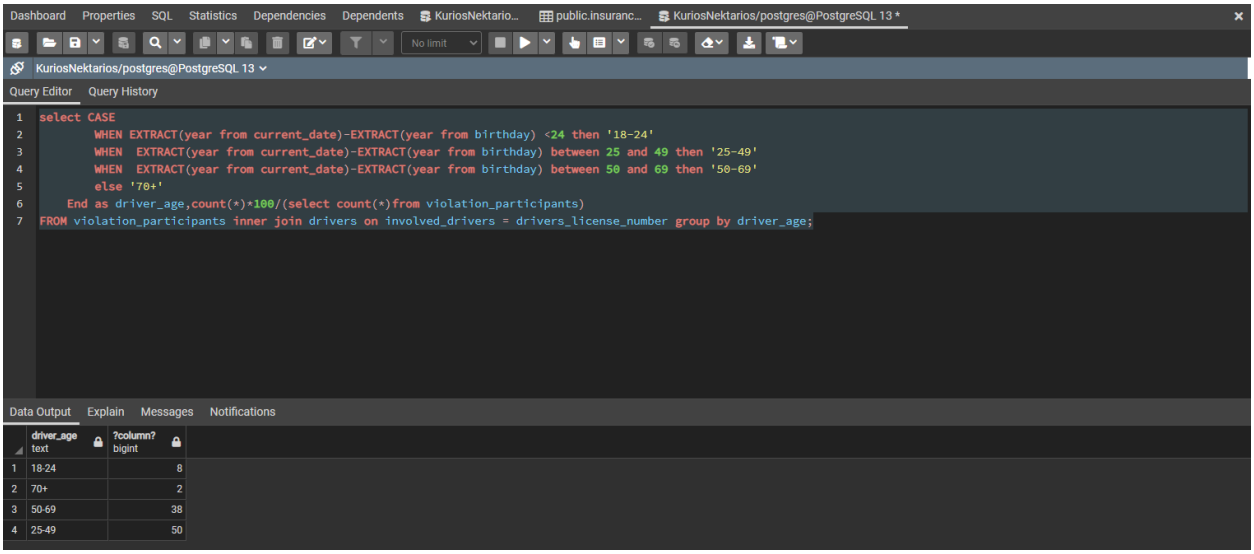
Δ1)


Dashboard Properties SQL Statistics Dependencies Dependents KuriosNektario... public.insuranc... KuriosNektarios/postgres@PostgreSQL 13 *
No limit
KuriosNektarios/postgres@PostgreSQL 13
Query Editor Query History
1 select sum (TO_NUMBER(contract_cost,'L9G999g999.99')) as total ,insurance_category from insurance inner join incat on ins=idincat group by insurance_category order by sum (TO_
Data Output Explain Messages Notifications
total numeric
insurance_category character varying
1 127035 professional
2 166472 private
3 226510 mixed

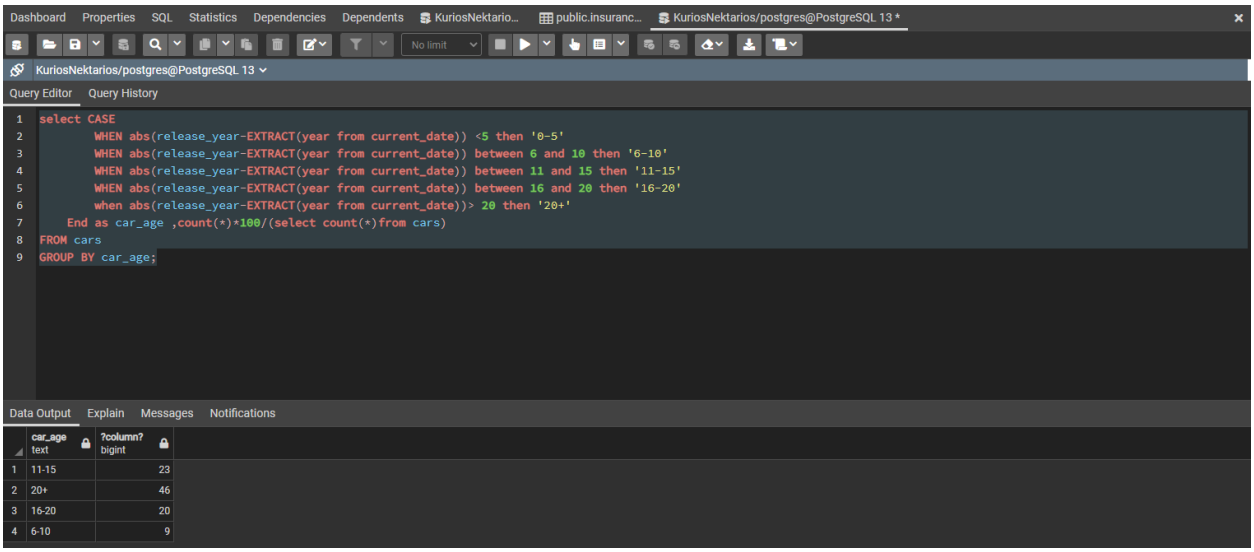
Δ2)


Dashboard Properties SQL Statistics Dependencies Dependents KuriosNektario... public.insuranc... KuriosNektarios/postgres@PostgreSQL 13 *
No limit
KuriosNektarios/postgres@PostgreSQL 13
Query Editor Query History
1 select count(contract_code),avg(TO_NUMBER(contract_cost,'L9G999g999.99')) as average_contract_cost,insurance_category, avg(TO_NUMBER(contract_cost,'L9G999g999.99'))*count(cont
Data Output Explain Messages Notifications
count bigint
average_contract_cost numeric
insurance_category character varying
total numeric
1 56 4044.8214285714285714 mixed 999999999984
2 43 2954.3023255813953488 professional 999999999984
3 51 3264.1568627450980392 private 999999999992

E)


Dashboard Properties SQL Statistics Dependencies Dependents KuriosNektario... public.insuranc... KuriosNektarios/postgres@PostgreSQL 13 *
No limit
KuriosNektarios/postgres@PostgreSQL 13
Query Editor Query History
select CASE
WHEN EXTRACT(year from current_date)-EXTRACT(year from birthday) <24 then '18-24'
WHEN EXTRACT(year from current_date)-EXTRACT(year from birthday) between 25 and 49 then '25-49'
WHEN EXTRACT(year from current_date)-EXTRACT(year from birthday) between 50 and 69 then '50-69'
else '70+'
End as driver_age,count(*)*100/(select count(*)from violation_participants)
FROM violation_participants inner join drivers on involved_drivers = drivers_license_number group by driver_age;
Data Output Explain Messages Notifications
driver_age text
?column? bigint
1 18-24 8
2 70+ 2
3 50-69 38
4 25-49 50

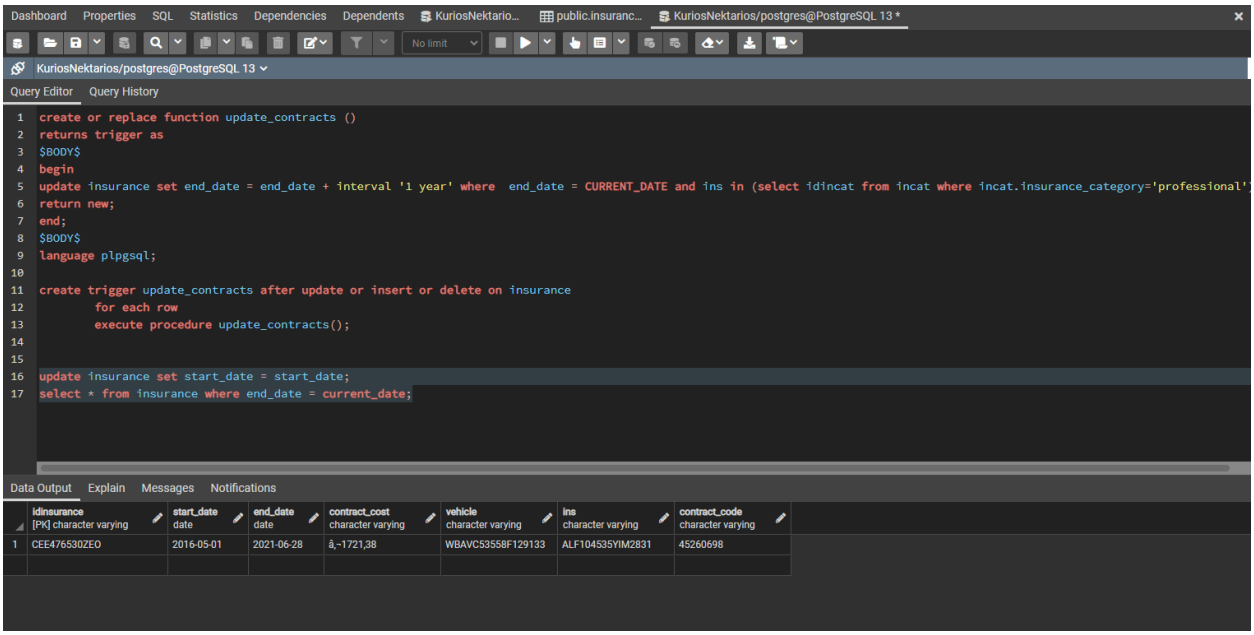
Φ)


Dashboard Properties SQL Statistics Dependencies Dependents KuriosNektario... public.insuranc... KuriosNektarios/postgres@PostgreSQL 13 *
No limit
KuriosNektarios/postgres@PostgreSQL 13
Query Editor Query History
select CASE
WHEN abs(release_year-EXTRACT(year from current_date)) <5 then '0-5'
WHEN abs(release_year-EXTRACT(year from current_date)) between 6 and 10 then '6-10'
WHEN abs(release_year-EXTRACT(year from current_date)) between 11 and 15 then '11-15'
WHEN abs(release_year-EXTRACT(year from current_date)) between 16 and 20 then '16-20'
when abs(release_year-EXTRACT(year from current_date))> 20 then '20+'
End as car_age ,count(*)*100/(select count(*)from cars)
FROM cars
GROUP BY car_age;
Data Output Explain Messages Notifications
car_age text
?column? bigint
1 11-15 23
2 20+ 46
3 16-20 20
4 6-10 9

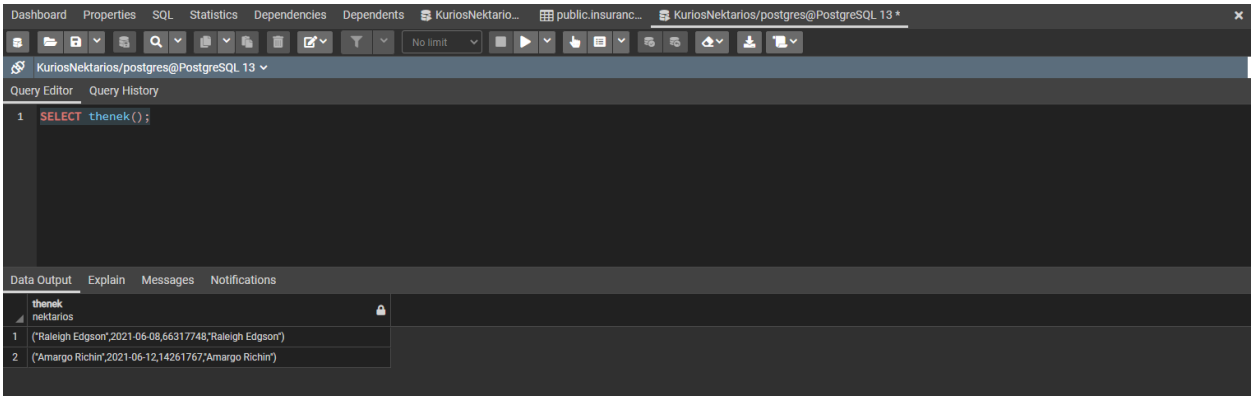
Άσκηση 3:

Τα trigger και cursor βρίσκονται στο αρχείο E and F.sql .

Trigger:

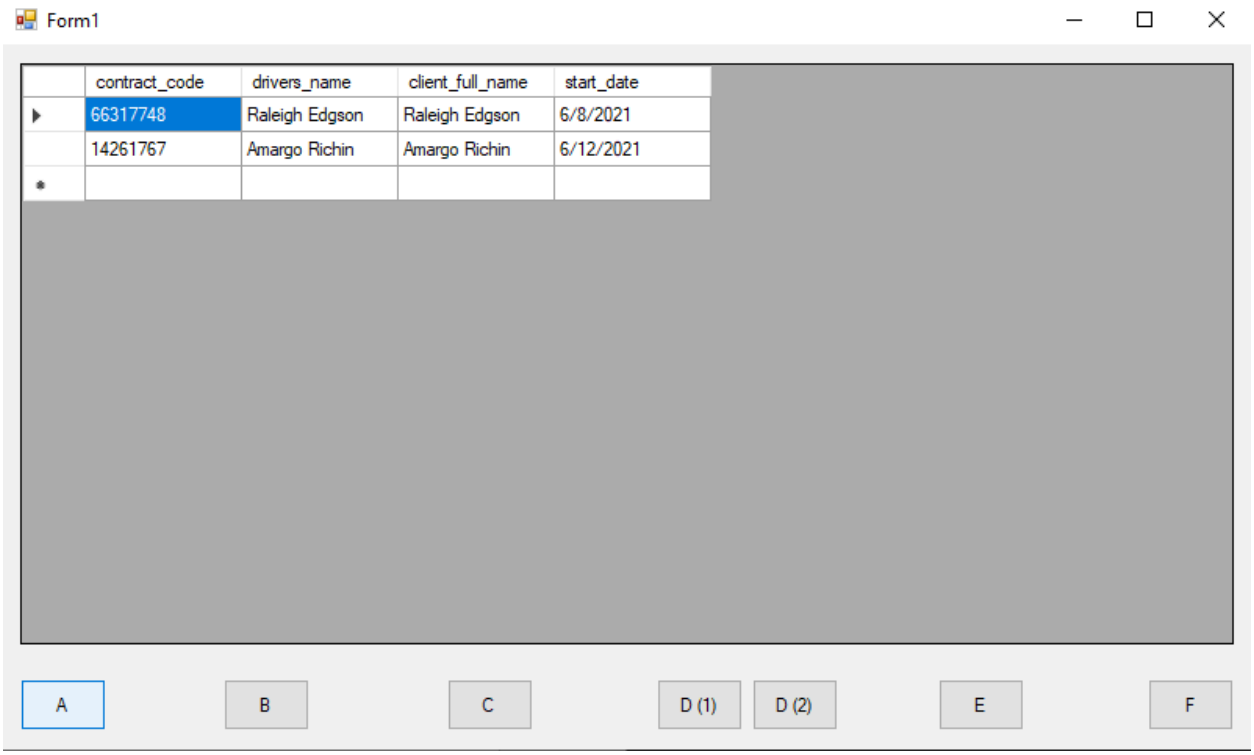


Cursor:

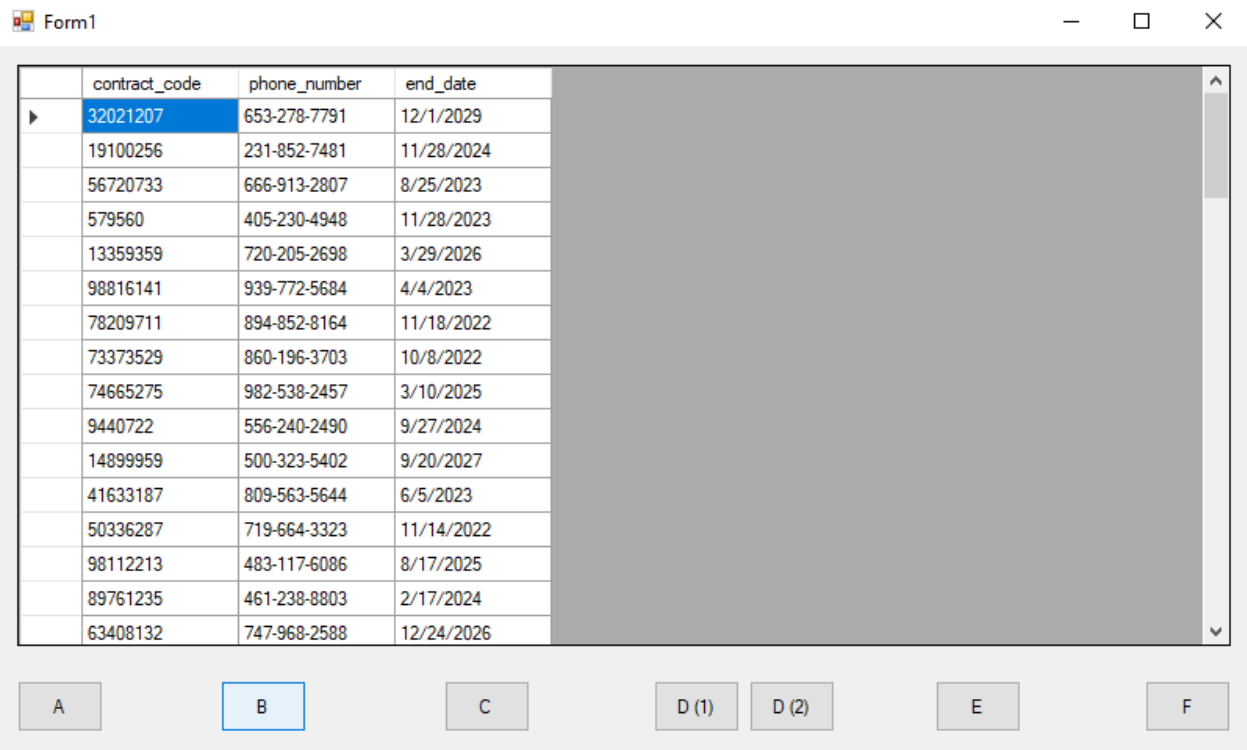


Άσκηση 4:

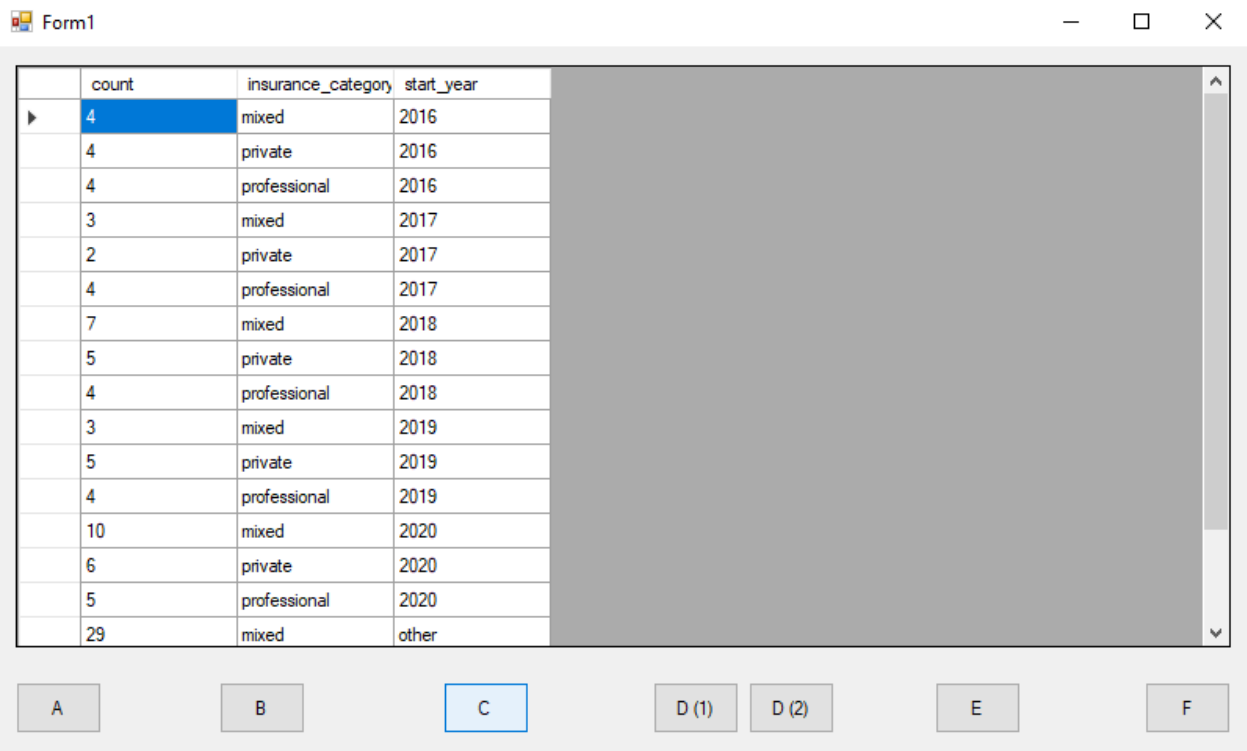
A) select insurance.contract_code,drivers_name,client_full_name,start_date from drivers inner join client on drivers.contract_code=client.contract_code inner join insurance on drivers.contract_code=insurance.contract_code where extract (month from start_date)=extract (month from current_date) and extract(year from start_date)= extract(year from current_date);



B) select insurance.contract_code, phone_number,end_date from insurance inner join client on insurance.contract_code=client.contract_code where end_date>date_trunc('month', current_date + interval '1' month);

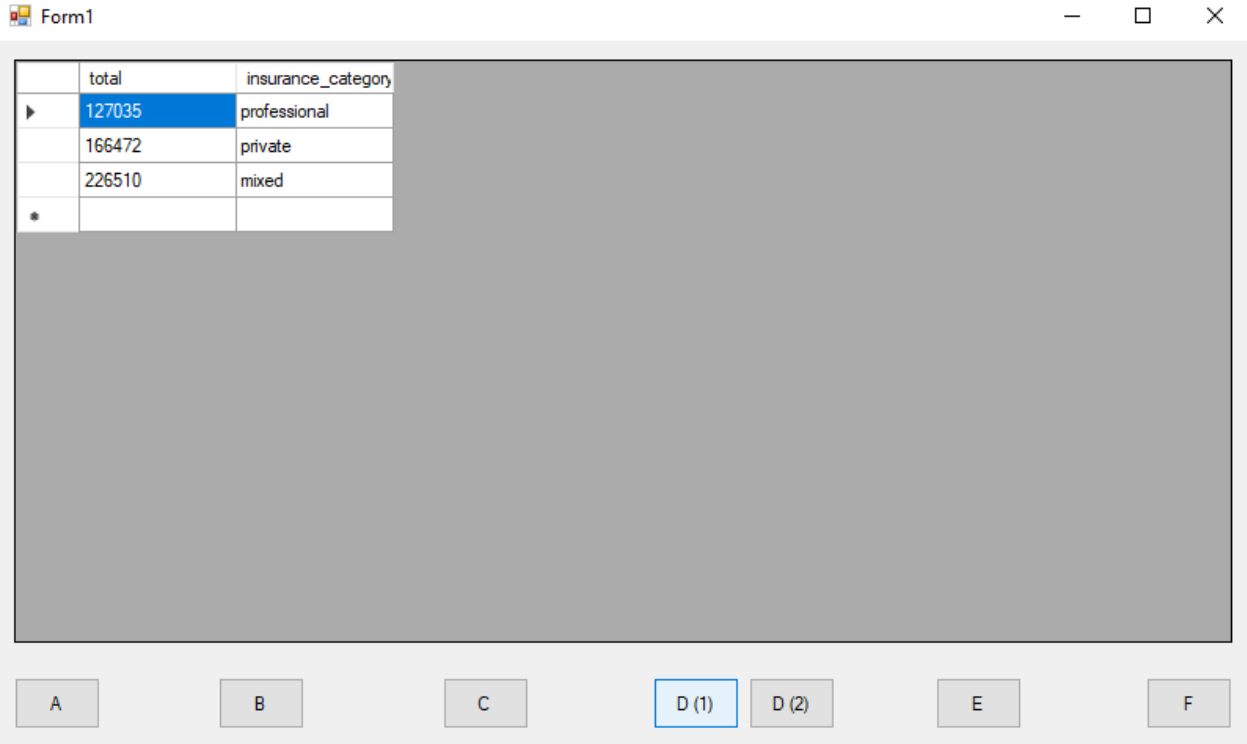


Г) select count (contract_code), insurance_category, case when extract(year from start_date)=2016 then '2016' when extract(year from start_date)=2017 then '2017' when extract(year from start_date)=2018 then '2018' when extract(year from start_date)=2019 then '2019' when extract(year from start_date)=2020 then '2020' else 'other' end as start_year from insurance inner join incat on idincat=ins group by insurance_category,start_year order by start_year;



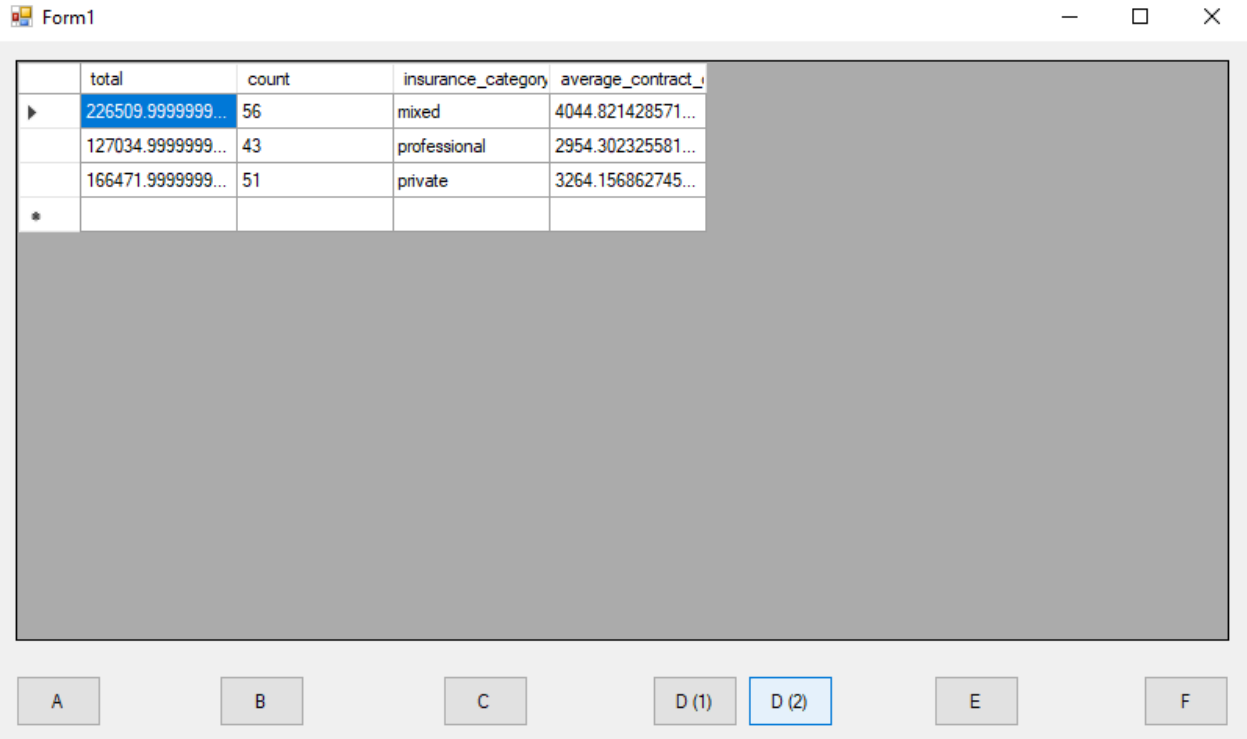
Δ1) select sum (TO_NUMBER(contract_cost,'L9G999g999.99')) as total ,insurance_category from insurance inner join incat on ins=idincat group by insurance_category order by sum

(TO_NUMBER(contract_cost,'L9G999g999.99'));



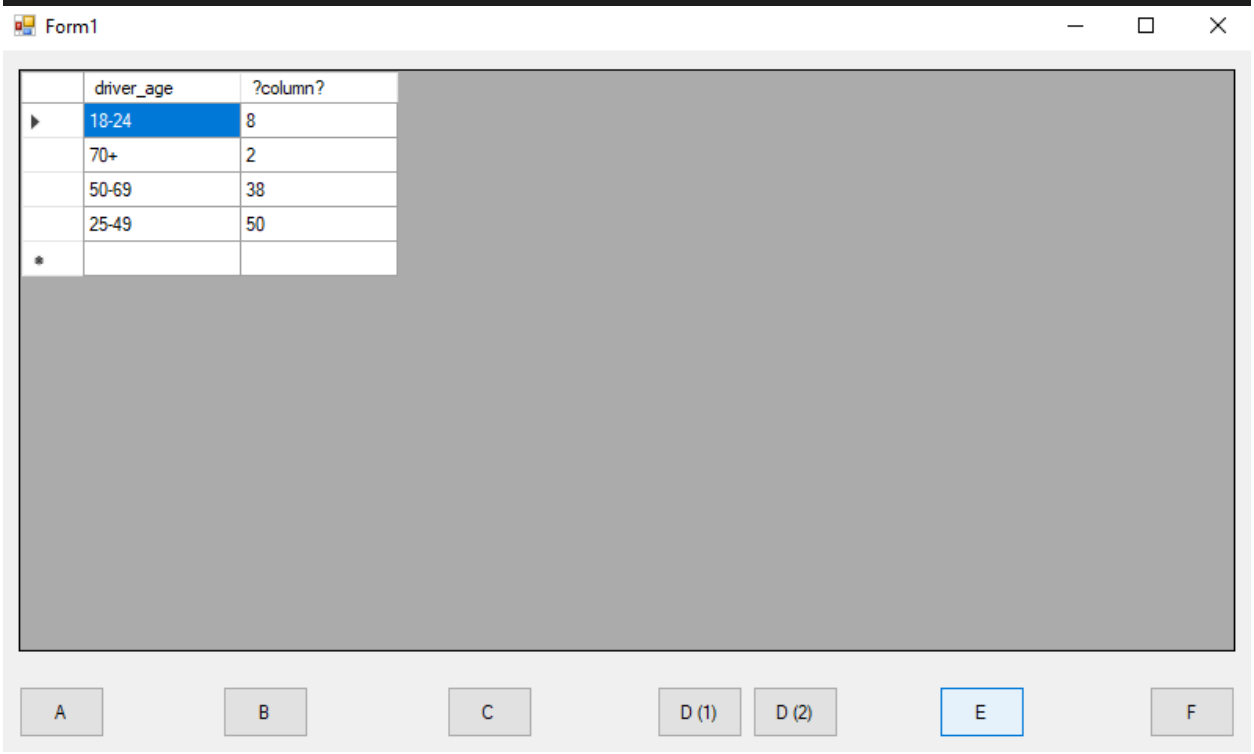
Δ2) select count(contract_code),avg(TO_NUMBER(contract_cost,'L9G999g999.99')) as average_contract_cost,insurance_category, avg(TO_NUMBER(contract_cost,'L9G999g999.99'))*count(contract_code) as total from insurance inner join incat on ins=idincat group by

insurance_category;



E)

```
/*E*/
select CASE
        WHEN EXTRACT(year from current_date)-EXTRACT(year from birthday) <24 then '18-24'
        WHEN  EXTRACT(year from current_date)-EXTRACT(year from birthday) between 25 and 49 then '25-49'
        WHEN  EXTRACT(year from current_date)-EXTRACT(year from birthday) between 50 and 69 then '50-69'
        else '70+'
    End as driver_age,count(*)*100/(select count(*)from violation_participants)
FROM violation_participants inner join drivers on involved_drivers = drivers_license_number group by driver_age;
```



Φ)

```sql
/*F*/
select CASE
        WHEN abs(release_year-EXTRACT(year from current_date)) <5 then '0-5'
        WHEN abs(release_year-EXTRACT(year from current_date)) between 6 and 10 then '6-10'
        WHEN abs(release_year-EXTRACT(year from current_date)) between 11 and 15 then '11-15'
        WHEN abs(release_year-EXTRACT(year from current_date)) between 16 and 20 then '16-20'
        when abs(release_year-EXTRACT(year from current_date))> 20 then '20+'
    End as car_age ,count(*)*100/(select count(*)from cars)
FROM cars
GROUP BY car_age;
```