Proiect baze de date

Gestionarea unor service-uri auto din Bucuresti

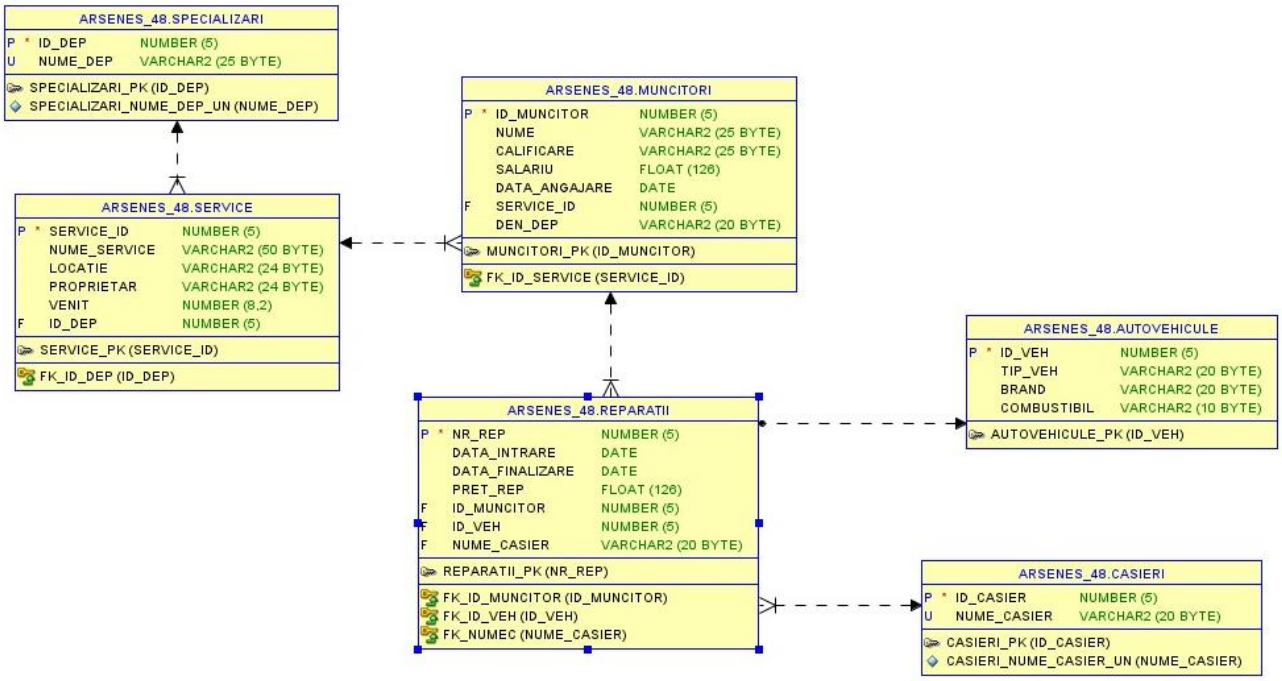
1.Descrierea bazei de date

Tema proiectului este gestiunea activitatii unor service-uri din Bucuresti. Am creat o baza de date care ofera tuturor oamenilor o evidenta a masinilor ce necesita sau au necesitat o reparatie, pentru o perspectiva mai obiectiva asupra service-urilor, preturilor si mecanicilor. Datorita acestor informatii, oamenii pot vedea care este cel mai potrivit service pentru nevoile lor.

In primul rand, am creat un tabel cu toate specializarile posibile pentru a identifica specializarea fiecaruia, apoi am prezentat numele service-urilor impreuna cu ID-ul acestora, numele proprietarilor, locatia si cifra de afaceri.

In al doilea rand, am creat un tabel cu toti angajatii service-urilor, in care am afisat numele fiecaruia, id- ul, salariul, data angajarii, calificarea dar si id-ul service-ului la care lucreaza. Alaturi de tabelul cu autovehicule in care prezint tipul fiecarui vehicul, brand ul si combustibilul, am creat si un tabel in care am aduagat fiecare reparatie dar si un tabel cu casierii din fiecare service.

2. Schema bazei de date

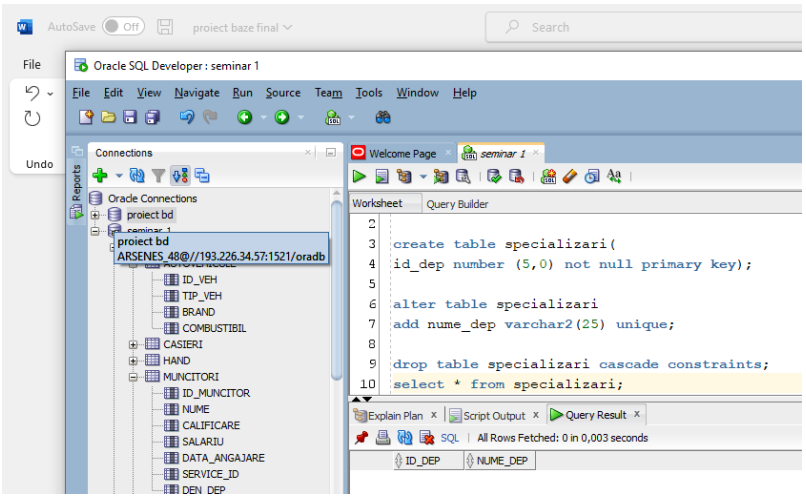


3. Crearea tabelelor

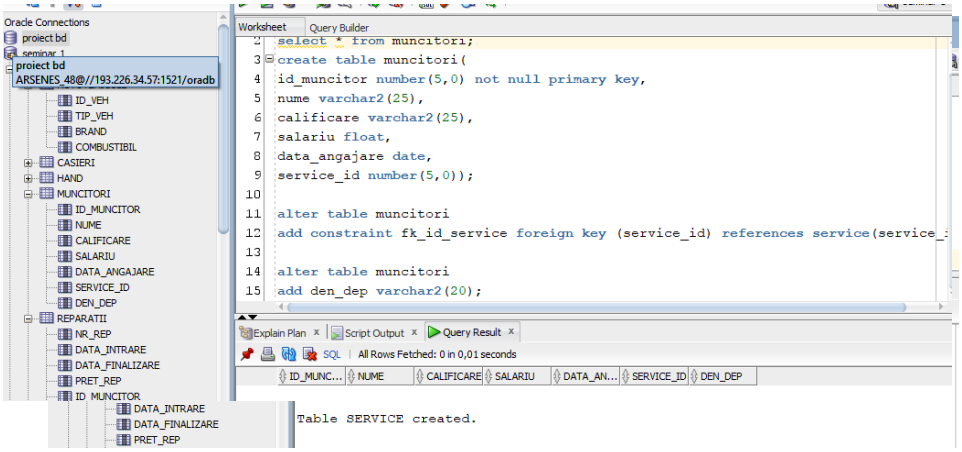
In total au fost create 6 tabele- SPECIALIZARI, SERVICE, MUNCITORI, CASIERI, REPARATII, AUTOVEHICULE.

a.Specializari

```
create table specializari(
id_dep number (5,0) not null primary key);
alter table specializari
add nume_dep varchar2(25) unique;
select * from specializari;
```



b.Service



create table service(

service_id number(5,0) not null primary key,

nume_service varchar2(50) ,

locatie varchar2(24),

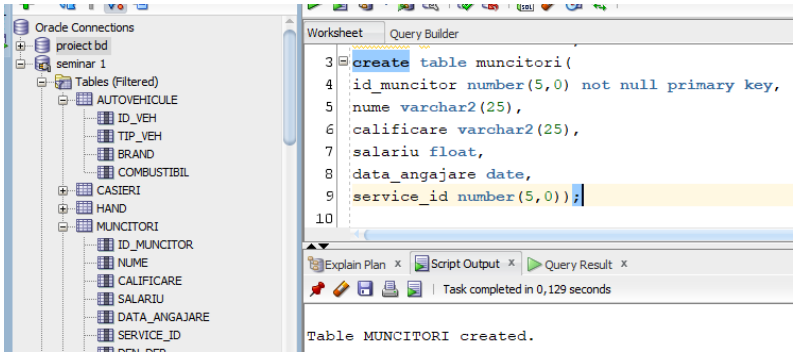
proprietar varchar2(24),

venit number(8,2),

id_dep number(5,0),

constraint fk_id_dep foreign key(id_dep) references specializari(id_dep));

c.Muncitori



create table muncitori(

id_muncitor number(5,0) not null primary key,

nume varchar2(25),

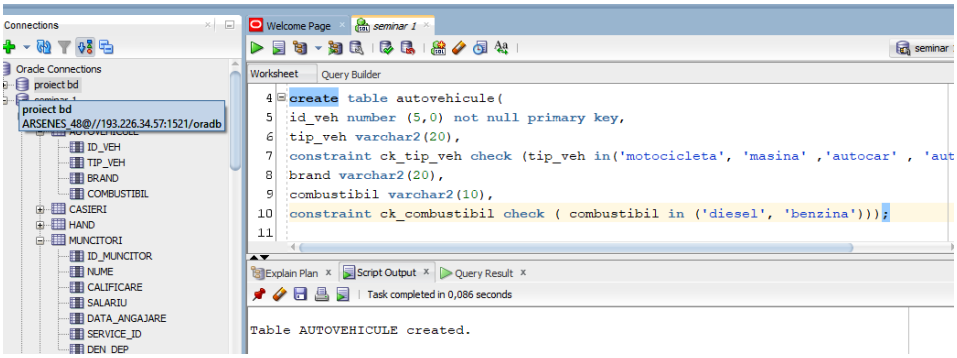
calificare varchar2(25),

salariu float,

data_angajare date,

service_id number(5,0));

d. Autovehicule



create table autovehicule(

id_veh number (5,0) not null primary key,

tip_veh varchar2(20),

constraint ck_tip_veh check

(tip_veh in('motocicleta', 'masina' ,'autocar' , 'autoutilitara')),

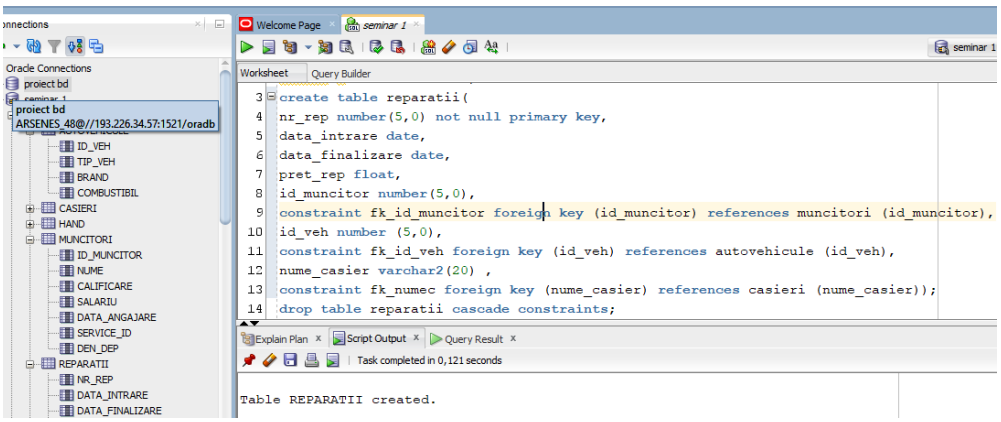
brand varchar2(20),

combustibil varchar2(10),

constraint ck_combustibil check (combustibil in ('diesel', 'benzina')));

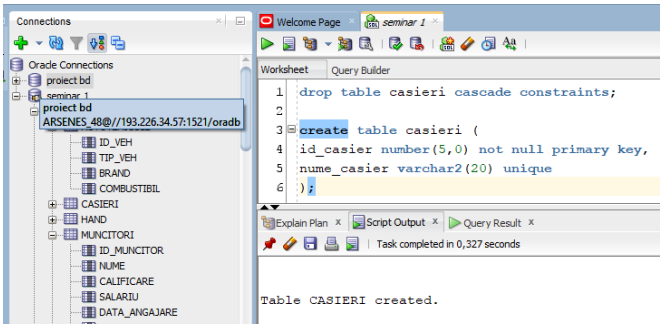
e.Reparatii

```
create table reparatii(
nr_rep number(5,0) not null primary key,
data_intrare date,
data_finalizare date,
pret_rep float,
id_muncitor number(5,0),
constraint fk_id_muncitor foreign key (id_muncitor) references muncitori (id_muncitor),
id_veh number (5,0),
constraint fk_id_veh foreign key (id_veh) references autovehicule (id_veh),
nume_casier varchar2(20) ,
constraint fk_numec foreign key (nume_casier) references casieri (nume_casier));
drop table reparatii cascade constraints;
```



f.Casieri

```
create table casieri (
id_casier number(5,0) not null primary key,
nume_casier varchar2(20) unique
);
```



4. Actualizarea structurii tabelelor si modificarea restrictiilor de integritate

Am adaugat in tabela specializari coloana nume_dep:

```
alter table specializari
add nume_dep varchar2(25) unique;
```

Am adaugat in tabela munictori o cheie externa si o coloana noua

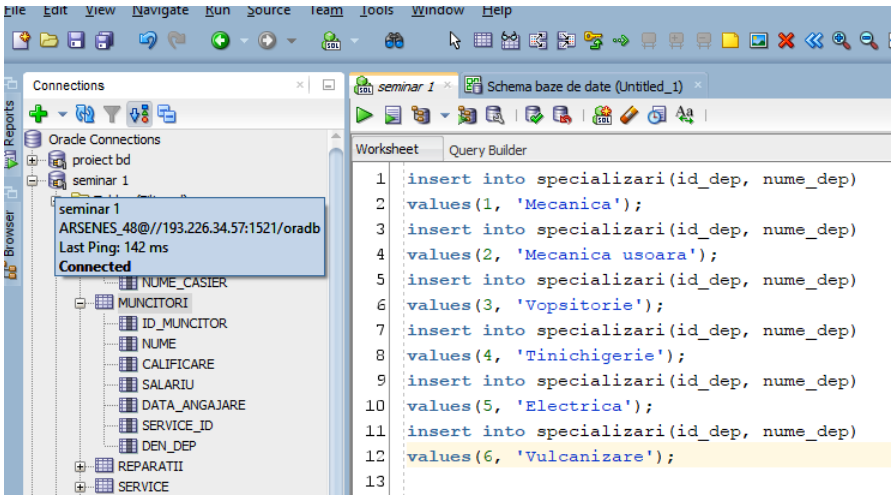
```
alter table muncitori
add constraint fk_id_service foreign key (service_id) references
service(service_id);

alter table muncitori
add den_dep varchar2(20);
```

5. Adăugarea (min 10, max 15) de înregistrări în fiecare tabelă

Inregistrari in tabela **specializari**

```
insert into specializari(id_dep, nume_dep)
values(1, 'Mecanica');
insert into specializari(id_dep, nume_dep)
values(2, 'Mecanica usoara');
insert into specializari(id_dep, nume_dep)
values(3, 'Vopsitorie');
insert into specializari(id_dep, nume_dep)
values(4, 'Tinichigerie');
insert into specializari(id_dep, nume_dep)
values(5, 'Electrica');
insert into specializari(id_dep, nume_dep)
values(6, 'Vulcanizare');
```



Inregistrari in tabela **service**

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

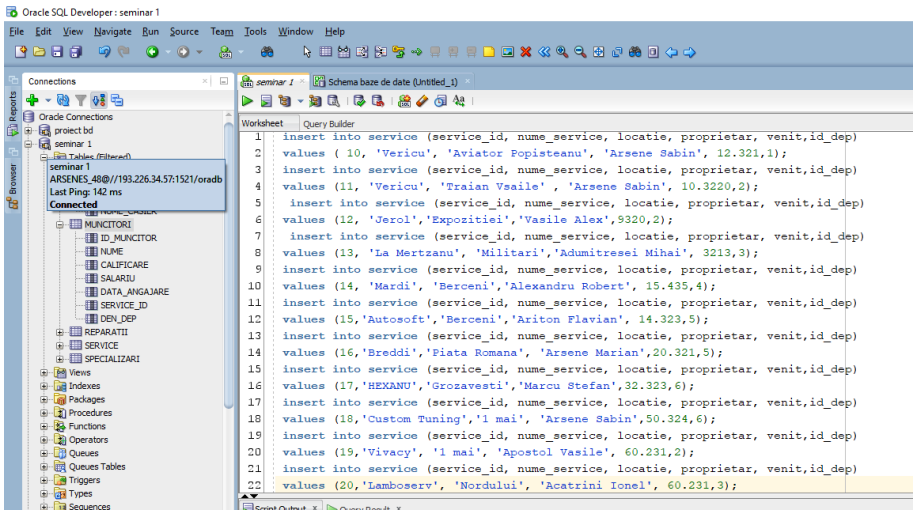
values (10, 'Vericu', 'Aviator Popisteanu', 'Arsene Sabin', 12321,1);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (11, 'Vericu', 'Traian Vsaile' , 'Arsene Sabin', 10322,2);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (12, 'Jerol','Expozitiei','Vasile Alex',9320,2);



insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (13, 'La Mertzanu', 'Militari','Adumitresei Mihai', 3213,3);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (14, 'Mardi', 'Berceni','Alexandru Robert', 15435,4);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (15,'Autosoft','Berceni','Ariton Flavian', 14323,5);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (16,'Breddi','Piata Romana', 'Arsene Marian',20321,5);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (17,'HEXANU','Grozavesti','Marcu Stefan',32323,6);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (18,'Custom Tuning','1 mai', 'Arsene Sabin',50324,6);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (19,'Vivacy', '1 mai', 'Apostol Vasile', 60231,2);

insert into service (service_id, nume_service, locatie, proprietar, venit,id_dep)

values (20,'Lamboserv', 'Nordului', 'Acatrini Ionel', 60231,3);

Inregistrari in tabela **muncitori**

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (100, 'Mitrut Vasile', 'Mecanic', 2400, '29/JUN/2002', 10, 'Mecanica usoara');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (101, 'Mihai Ion', 'Tinichigiu', 2000, '19/AUG/2010', 11, 'Tinichigerie');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (102, 'Alexandru Ionel', 'Vopsitor', 3000, '18/AUG/2011',12, 'Vopsitorie');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (103, 'Popescu Alex', 'Mecanic', 2800, '19/JUN/2021',13, 'Mecanica usoara');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (104, 'Popescu Mihai', 'Electrician', 2200, '21/JAN/2008',14, 'Electronica');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (105, 'Popescu Vasile', 'Vopsitor', 4000, '28/SEP/2019',15, 'Vopsitorie');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (106, 'Popescu Ion', 'Vopsitor', 3000, '28/OCT/2004',16, 'Vopsitorie');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (107, 'Oprisan Vasile', 'Electrician', 2800, '28/OCT/2012',17, 'Electronica');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (108, 'Mihai Ion', 'Mecanic', 1600, '29/JUL/2019',18,'Mecanica');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (109, 'Mhai Viorica', 'Electrician', 1800, '29/JUL/2018',20, 'Electronica');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (110, 'Micu Ionel', 'Mecanic', 6000, '29/JUN/2000',20, 'Mecanica usoara');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (111, 'Miluta Vicu', 'Electrician', 2800, '28/sep/2000',15, 'Electronica');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (112, 'Milea Ion', 'Vopsitor',3500, '27/jun/2008',16, 'Vopsitorie');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

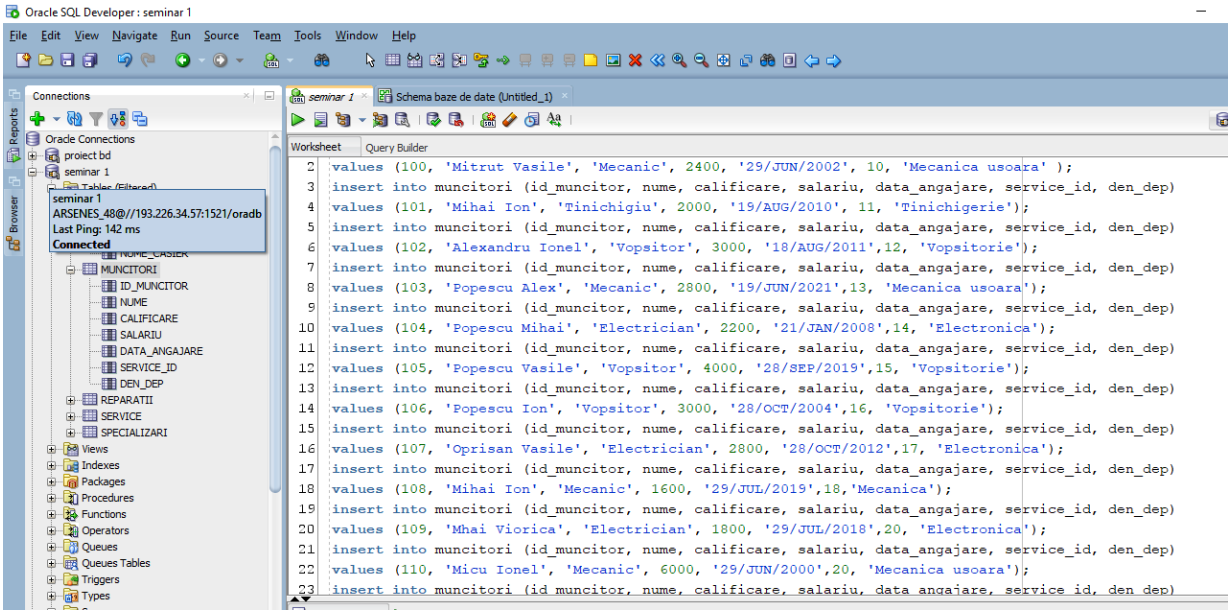
values (113, 'Piciu Vasile', 'Vopsitor', 7000, '22/mar/2007', 18, 'Vopsitorie');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (114, 'Pinca Gheorghe', 'Mecanic',5000, '28/jun/2009',19, 'Vulcanizare');

insert into muncitori (id_muncitor, nume, calificare, salariu, data_angajare, service_id, den_dep)

values (115, 'Miu Ion', 'Mecanic', 4000, '29/jun/2003',11, 'Mecanica');



Inregistrari in tabela **autovehicule**

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(159, 'motocicleta', 'ducati', 'benzina');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(485, 'motocicleta', 'piagio', 'benzina');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(568, 'motocicleta', 'bmw', 'benzina');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(486, 'masina', 'bmw', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(527, 'autoutilitara', 'mercedes', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(745, 'autoutilitara', 'peugeot', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(852, 'autocar', 'mercedes', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(332, 'motocicleta', 'bmw', 'benzina');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(559, 'masina', 'volkswagen', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(885, 'autoutilitara', 'volkswagen', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(323, 'masina', 'skoda', 'benzina');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

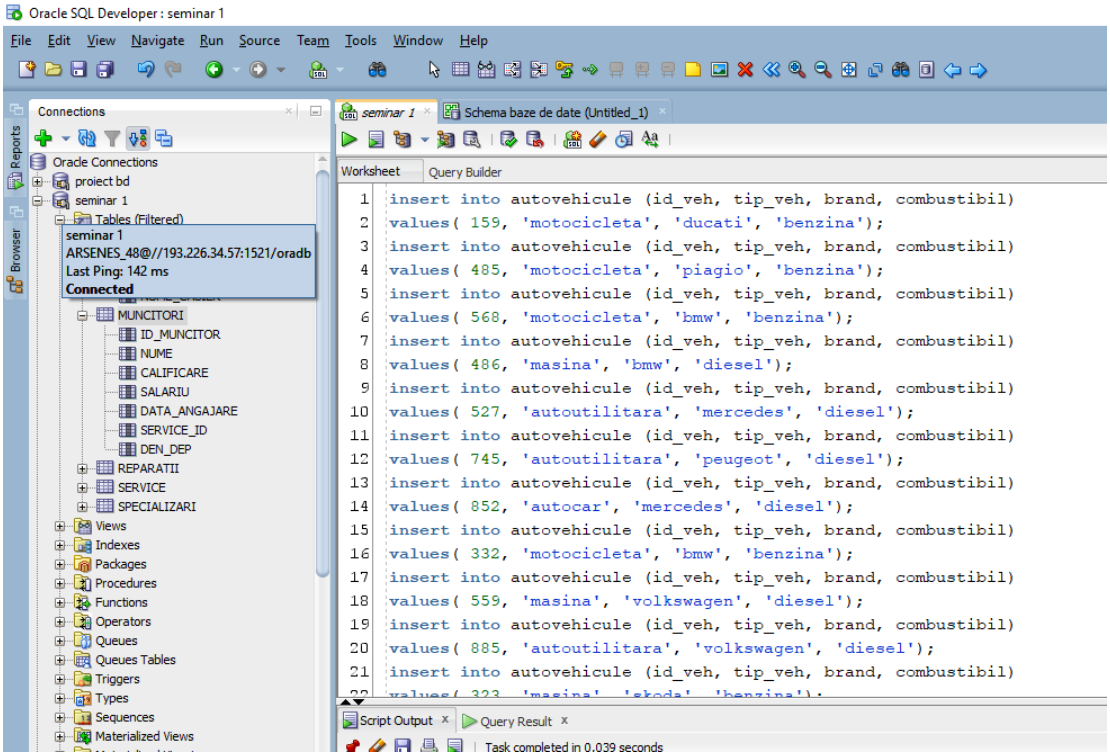
values(741, 'autocar', 'MAN', 'diesel');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(990, 'masina', 'fiat', 'benzina');

insert into autovehicule (id_veh, tip_veh, brand, combustibil)

values(643, 'masina', 'audi', 'diesel');



Inregistrari in tabela **reparatii**

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12443, '2/jan/2023', '4/jan/2023', 356.32, 100, 159, 'Marci Mariana');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12408, '3/jan/2023', '5/jan/2023', 3214, 114, 332, 'Vartic Andreea');

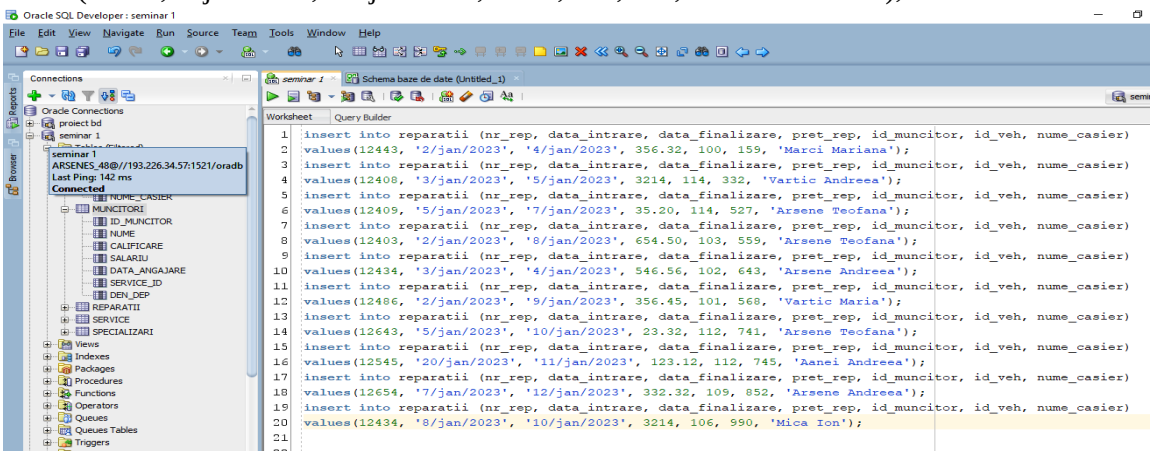
insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12409, '5/jan/2023', '7/jan/2023', 35.20, 114, 527, 'Arsene Teofana');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12403, '2/jan/2023', '8/jan/2023', 654.50, 103, 559, 'Arsene Teofana');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12434, '3/jan/2023', '4/jan/2023', 546.56, 102, 643, 'Arsene Andreea');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12486, '2/jan/2023', '9/jan/2023', 356.45, 101, 568, 'Vartic Maria');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12643, '5/jan/2023', '10/jan/2023', 23.32, 112, 741, 'Arsene Teofana');



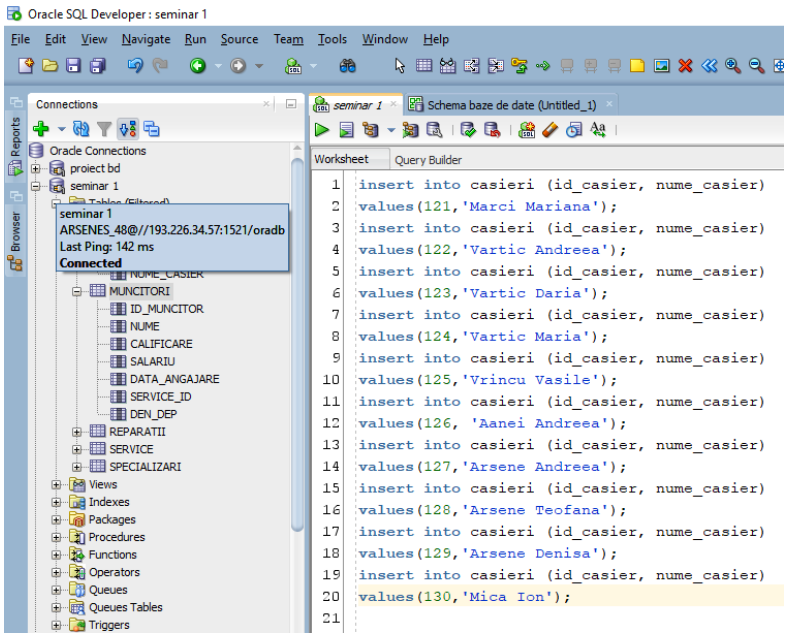
insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12545, '20/jan/2023', '11/jan/2023', 123.12, 112, 745, 'Aanei Andreea');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12654, '7/jan/2023', '12/jan/2023', 332.32, 109, 852, 'Arsene Andreea');

insert into reparatii (nr_rep, data_intrare, data_finalizare, pret_rep, id_muncitor, id_veh, nume_casier)
values(12435, '8/jan/2023', '10/jan/2023', 3214, 106, 990, 'Mica Ion');

Inregistrari in tabela **casieri**

```
insert into casieri (id_casier, nume_casier)
values(121,'Marci Mariana');
insert into casieri (id_casier, nume_casier)
values(122,'Vartic Andreea');
insert into casieri (id_casier, nume_casier)
values(123,'Vartic Daria');
insert into casieri (id_casier, nume_casier)
values(124,'Vartic Maria');
insert into casieri (id_casier, nume_casier)
values(125,'Vrincu Vasile');
insert into casieri (id_casier, nume_casier)
values(126, 'Aanei Andreea');
insert into casieri (id_casier, nume_casier)
values(127,'Arsene Andreea');
insert into casieri (id_casier, nume_casier)
values(128,'Arsene Teofana');
insert into casieri (id_casier, nume_casier)
values(129,'Arsene Denisa');
insert into casieri (id_casier, nume_casier)
values(130,'Mica Ion');
```

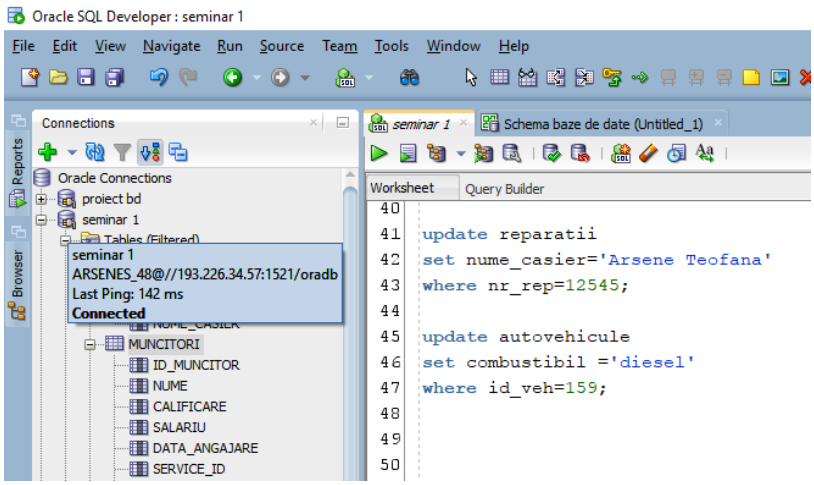


6. Actualizarea inregistrarilor

Am actualizat tabela **reparatii** si tabela **autovehicule**

```
update reparatii
set nume_casier='Arsene Teofana'
where nr_rep=12545;

update autovehicule
set combustibil ='diesel'
where id_veh=159;
```



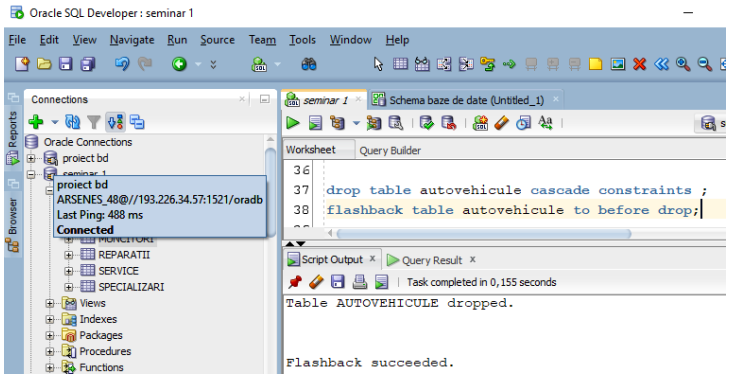
7. Stergerea si recuperarea unei tabele

Am ales sa sterg tabela autovehicule

```
drop table autovehicule cascade constraints ;
```

Si am reucuperat- o cu flashback.

```
flashback table autovehicule to before drop;
```

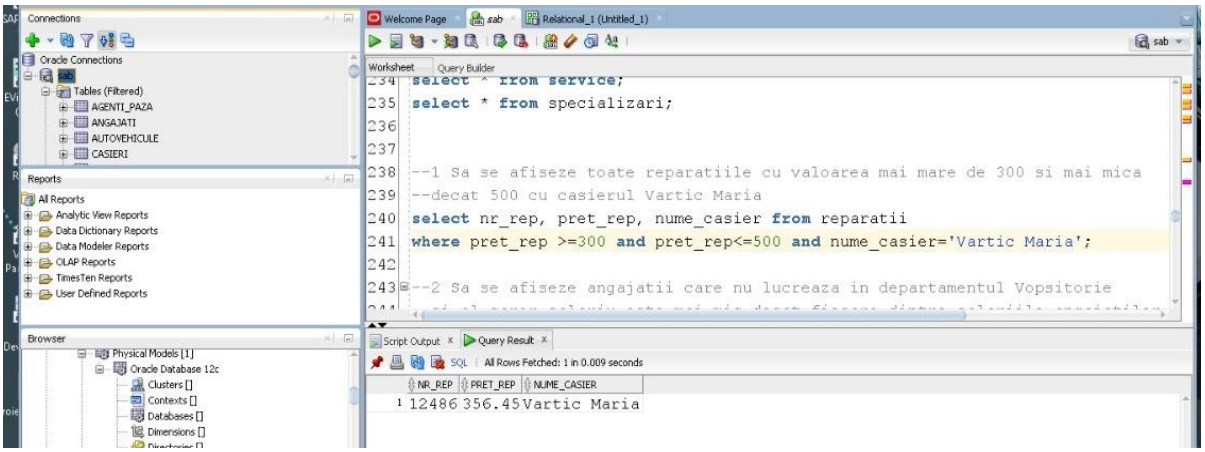


8. Exemple de interogari variate

--1 Sa se afiseze toate reparatiile cu valoarea mai mare de 300 si mai mica

--decat 500 cu casierul Vartic Maria

```
select nr_rep, pret_rep, nume_casier from reparatii
where pret_rep >=300 and pret_rep<=500 and nume_casier='Vartic Maria';
```



--2 Sa se afiseze angajatii care nu lucreaza in departamentul Vopsitorie

--si al caror salariu este mai mic decat fiecare dintre salariile angajatilor

--care lucreaza in departamentul vopsitorie

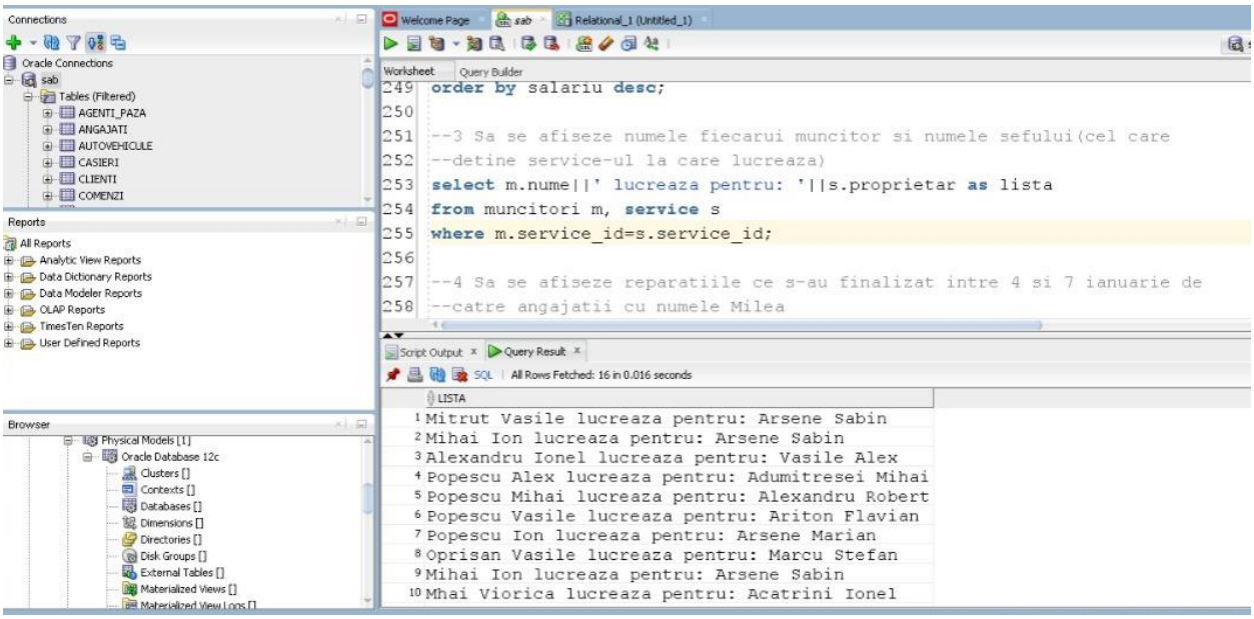
```
--2 Sa se afiseze angajatii care nu lucreaza in departamentul Vopsitorie
--si al caror salariu este mai mic decat fiecare dintre salariile angajatilor
--care lucreaza in departamentul vopsitorie
select id_muncitor, nume, calificare, salariu, den_dep from muncitori
where salariu < all (select salariu from muncitori where calificare ='Vopsitor
and calificare <> 'Vopsitor'
order by salariu desc;
--3 Sa se afiseze numele fiecarui muncitor si numele sefului(cel care
```

All Rows Fetched: 8 in 0.002 seconds

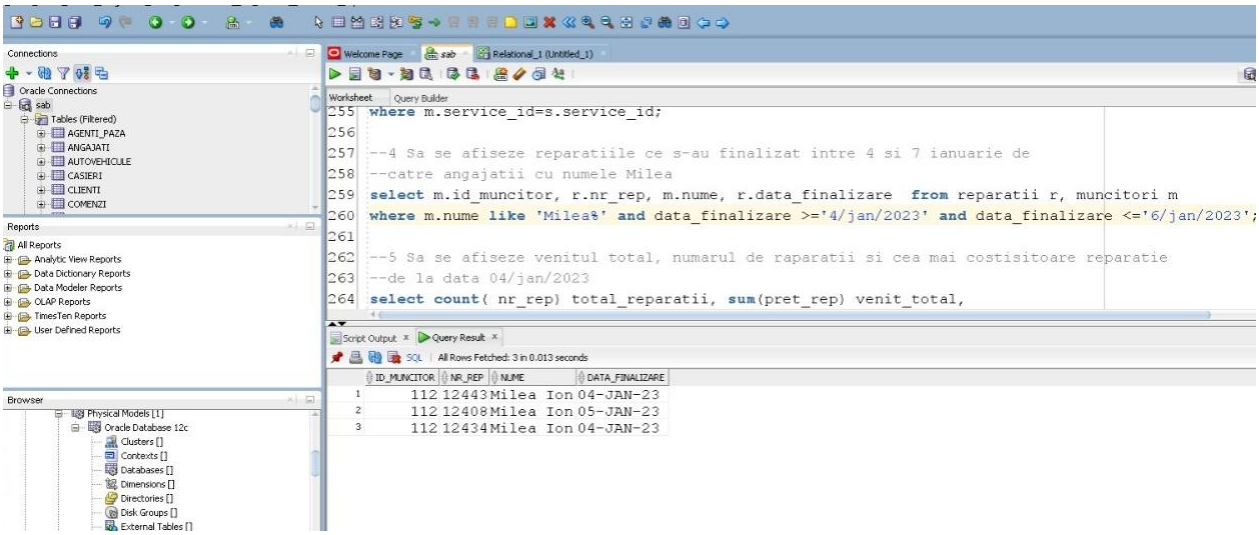
	ID_MUNCITOR	NUME	CALIFICARE	SALARIU	DEN_DEP
1	103	Popescu Alex	Mecanic	2800	Mecanica usoara
2	107	Oprisan Vasile	Electrician	2800	Electronica
3	111	Miluta Vicu	Electrician	2800	Electronica
4	100	Mitrut Vasile	Mecanic	2400	Mecanica usoara
5	104	Popescu Mihai	Electrician	2200	Electronica
6	101	Mihai Ion	Tinichigiu	2000	Tinichigerie
7	109	Mhai Viorica	Electrician	1800	Electronica
8	108	Mihai Ion	Mecanic	1600	Mecanica

```
select id_muncitor, nume, calificare, salariu, den_dep from muncitori
where salariu < all (select salariu from muncitori where calificare ='Vopsitor')
and calificare <> 'Vopsitor'
order by salariu desc;

--3 Sa se afiseze numele fiecarui muncitor si numele sefului(cel care
--detine service-ul la care lucreaza)
select m.nume||' lucreaza pentru: '||s.proprietar as lista
from muncitori m, service s
where m.service_id=s.service_id;
```




```
--4 Sa se afiseze reparatiile ce s-au finalizat intre 4 si 7 ianuarie de
--catre angajatii cu numele Milea
select m.id_muncitor, r.nr_rep, m.nume, r.data_finalizare  from reparatii r,
muncitori m
where m.nume like 'Milea%' and data_finalizare >='4/jan/2023' and data_finalizare
<='6/jan/2023';
```



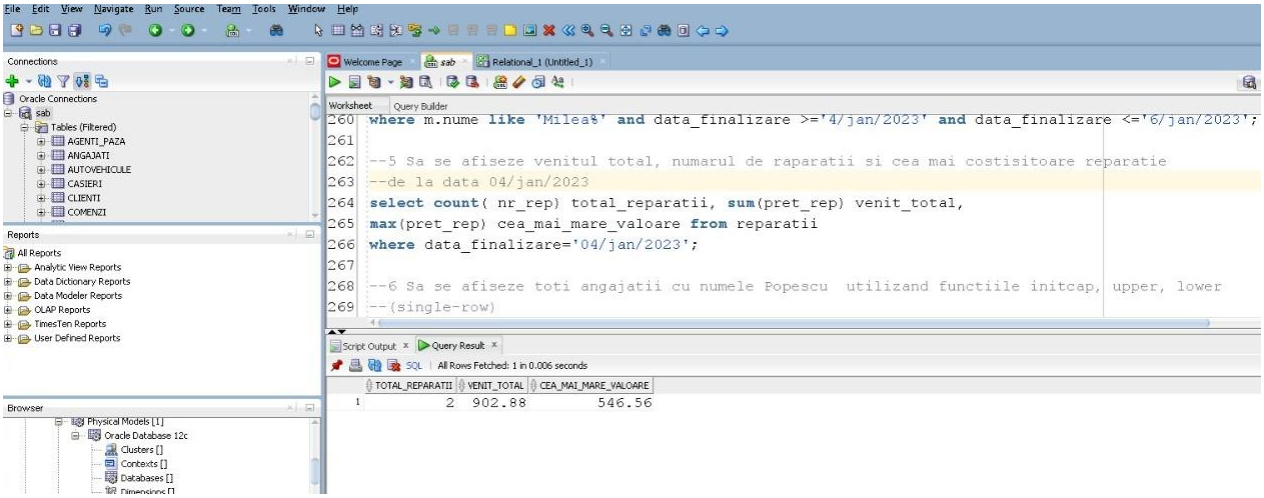
--5 Sa se afiseze venitul total, numarul de raparatii si cea mai costisitoare reparatie

--de la data 04/jan/2023

select count(nr_rep) total_reparatii, sum(pret_rep) venit_total,

max(pret_rep) cea_mai_mare_valoare from reparatii

where data_finalizare='04/jan/2023';



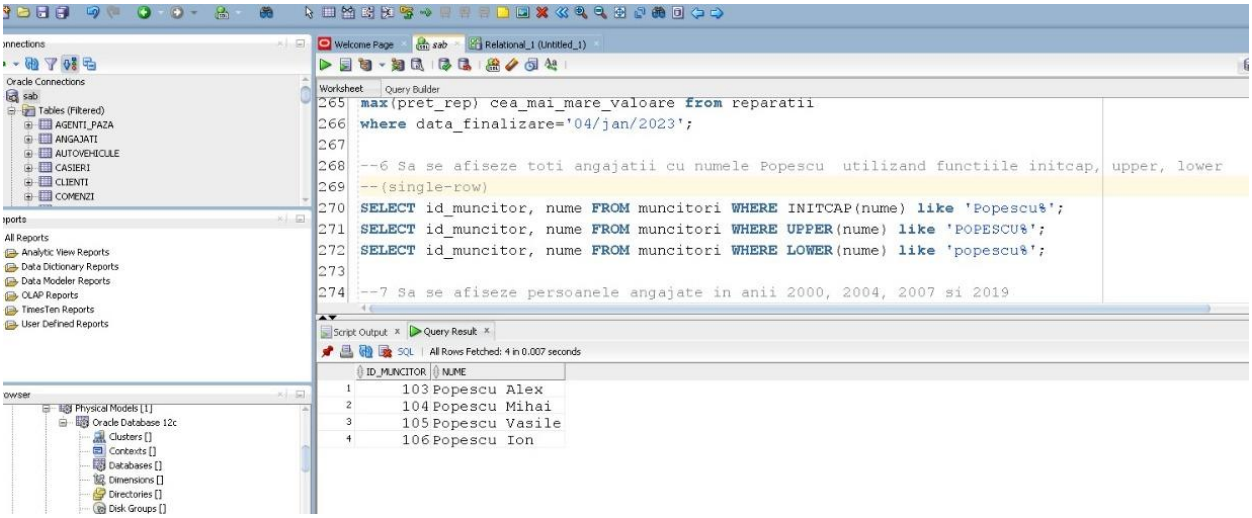
--6 Sa se afiseze toti angajatii cu numele Popescu utilizand functiile initcap, upper, lower

--(single-row)

SELECT id_muncitor, nume FROM muncitori WHERE INITCAP(nume) like 'Popescu%';

SELECT id_muncitor, nume FROM muncitori WHERE UPPER(nume) like 'POPESCU%';

SELECT id_muncitor, nume FROM muncitori WHERE LOWER(nume) like 'popescu%';



--7 Sa se afiseze persoanele angajate in anii 2000, 2004, 2007 si 2019

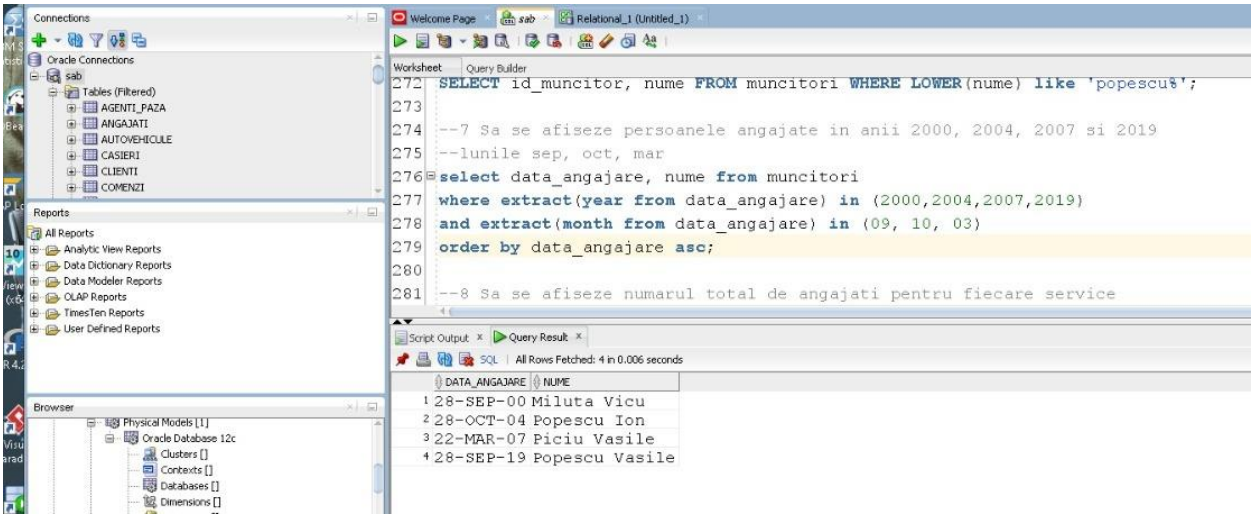
--lunile sep, oct, mar

select data_angajare, nume from muncitori

where extract(year from data_angajare) in (2000,2004,2007,2019)

and extract(month from data_angajare) in (09, 10, 03)

order by data_angajare asc;



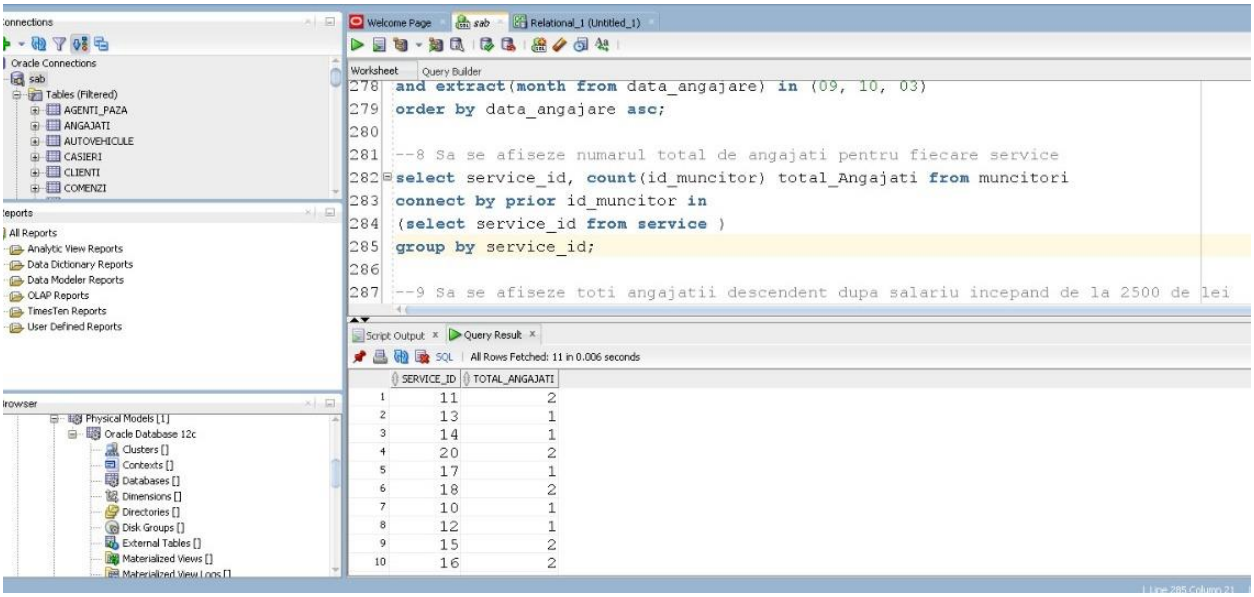
--8 Sa se afiseze numarul total de angajati pentru fiecare service

select service_id, count(id_muncitor) total_Angajati from muncitori

connect by prior id_muncitor in

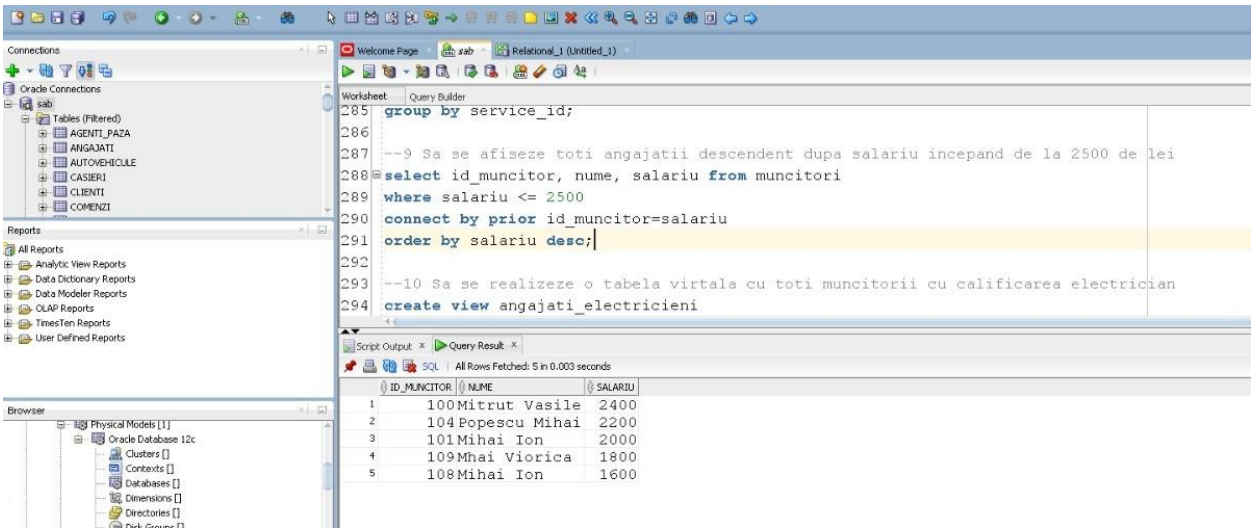
(select service_id from service)

group by service_id;



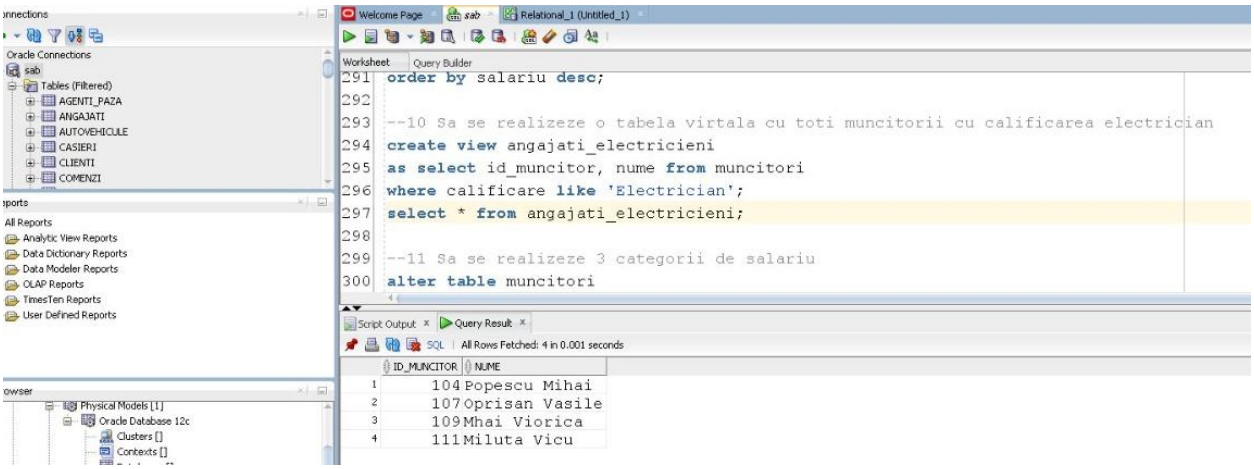
--9 Sa se afiseze toti angajatii descendent dupa salariu incepand de la 2500 de lei

```
select id_muncitor, nume, salariu from muncitori
where salariu <= 2500
connect by prior id_muncitor=salariu
order by salariu desc;
```

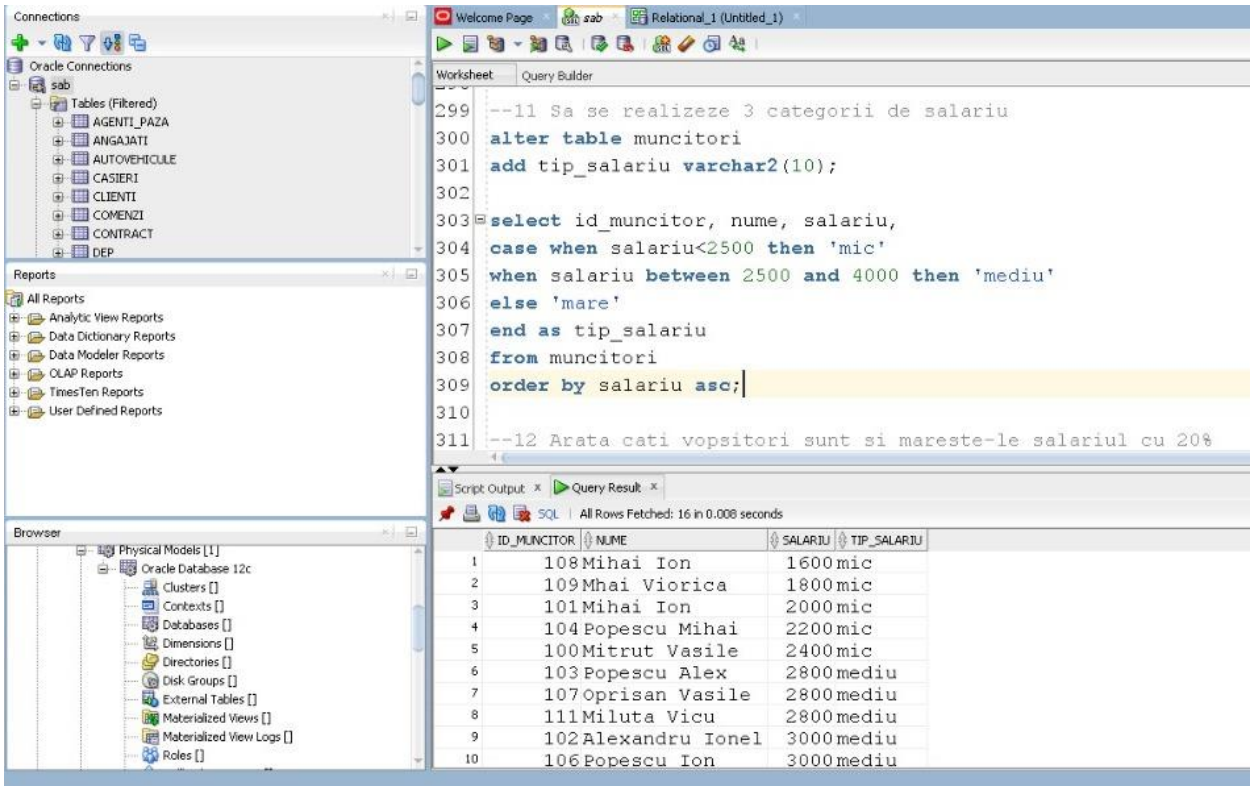


--10 Sa se realizeze o tabela virtala cu toti muncitorii cu calificarea electrician

```
create view angajati_electricieni
as select id_muncitor, nume from muncitori
where calificare like 'Electrician';
select * from angajati_electricieni;
```



--11 Sa se realizeze 3 categorii de salariu



alter table muncitori

add tip_salariu varchar2(10);

select id_muncitor, nume, salariu,

case when salariu<2500 then 'mic'

when salariu between 2500 and 4000 then 'mediu'

else 'mare'

end as tip_salariu

from muncitori

order by salariu asc;

--12 Arata cati vopsitori sunt si mareste-le salariul cu 20%

select count(id_muncitor) Vopsitori

from muncitori

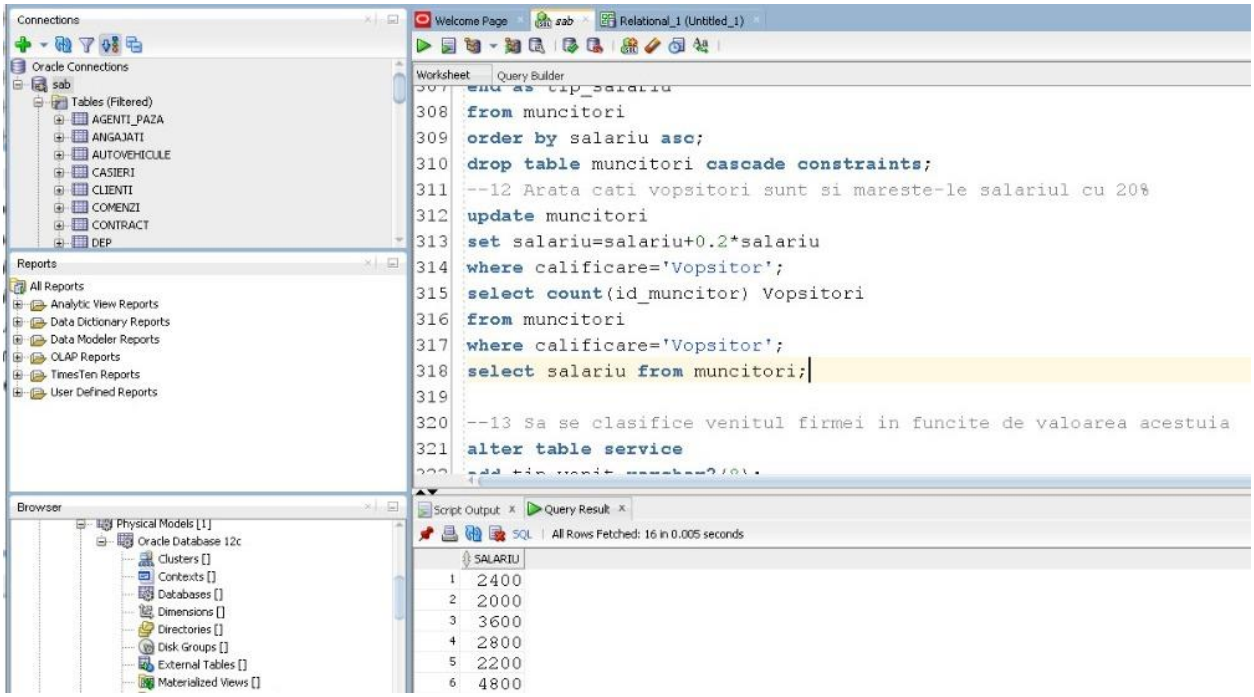
where calificare='Vopsitor';

update muncitori

set salariu=salariu+0.2*salariu

where calificare='Vopsitor';

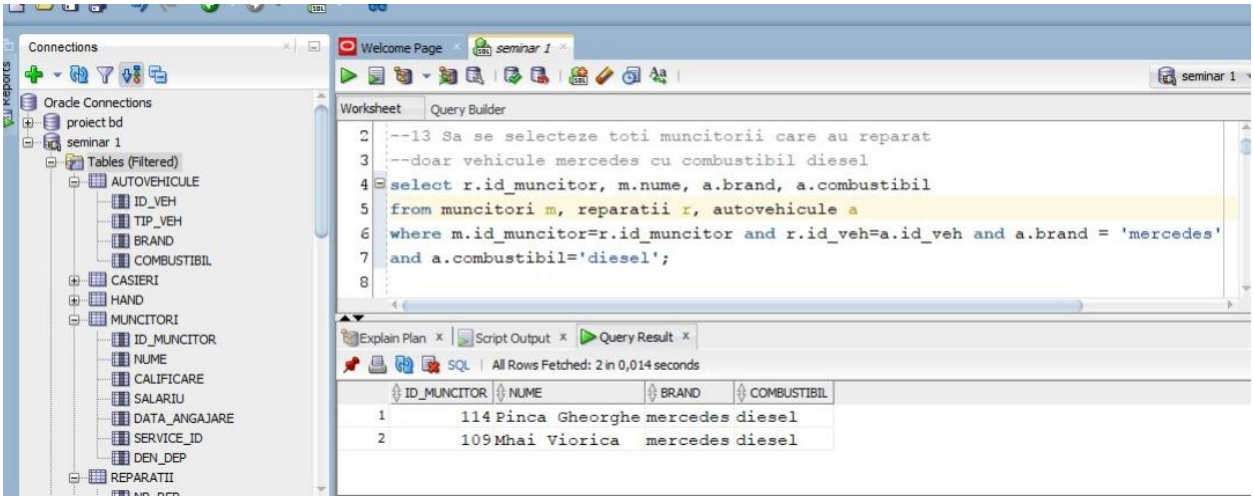
select venit from service;



--13 Sa se selecteze toti muncitorii care au reparat doar vehicule mercedes cu combustibil diesel

select r.id_muncitor, m.nume, a.brand, a.combustibil from muncitori m, reparatii r, autovehicule a

where m.id_muncitor=r.id_muncitor and r.id_veh=a.id_veh and a.brand = 'mercedes' and a.combustibil='diesel';

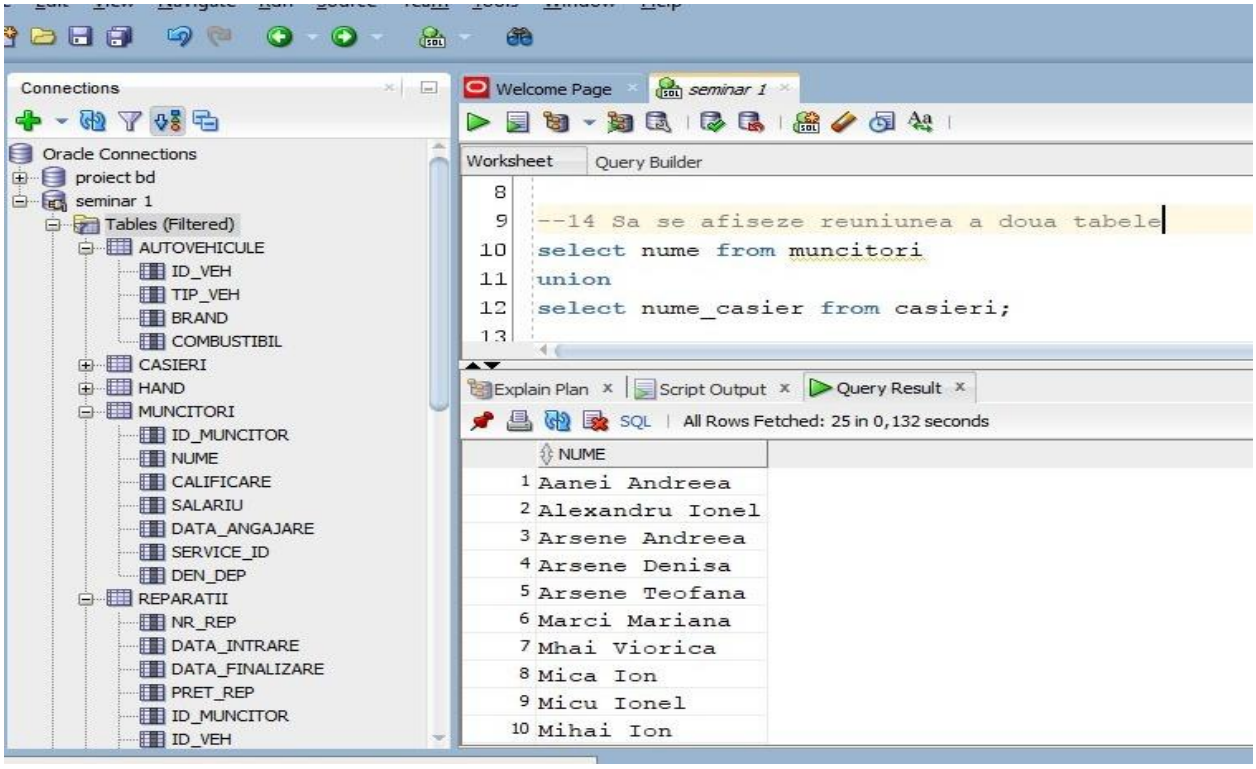


--14 Sa se afiseze reuniunea a doua tabele

select nume from muncitori

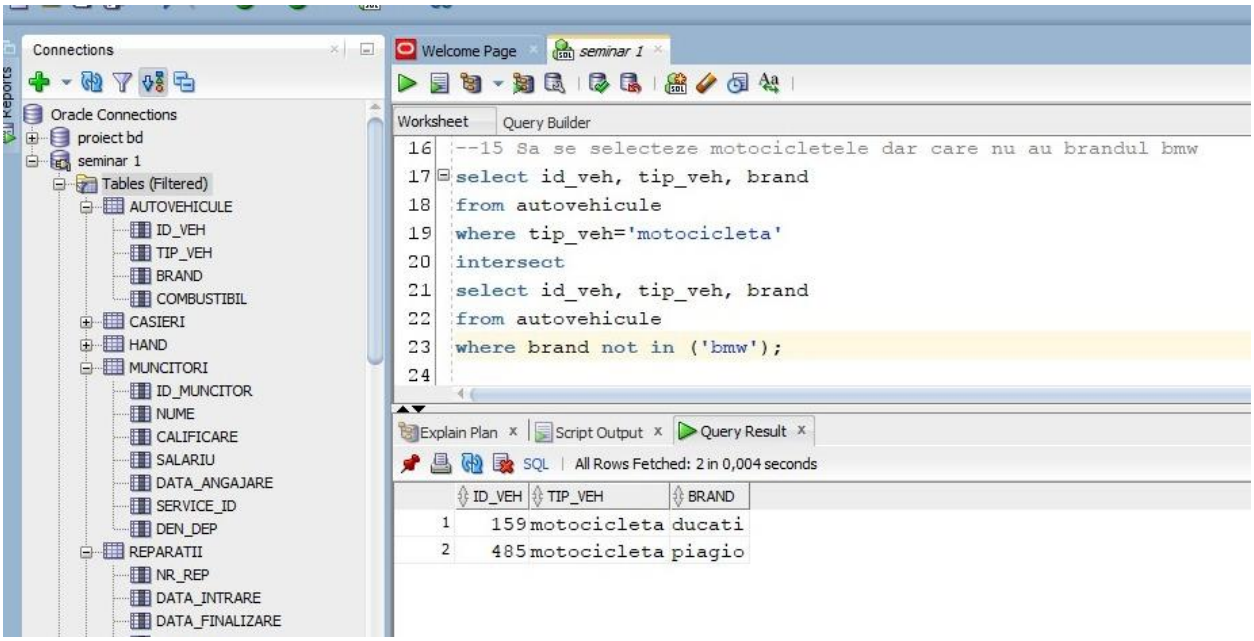
union

select nume_casier from casieri; select * from autovehicule;



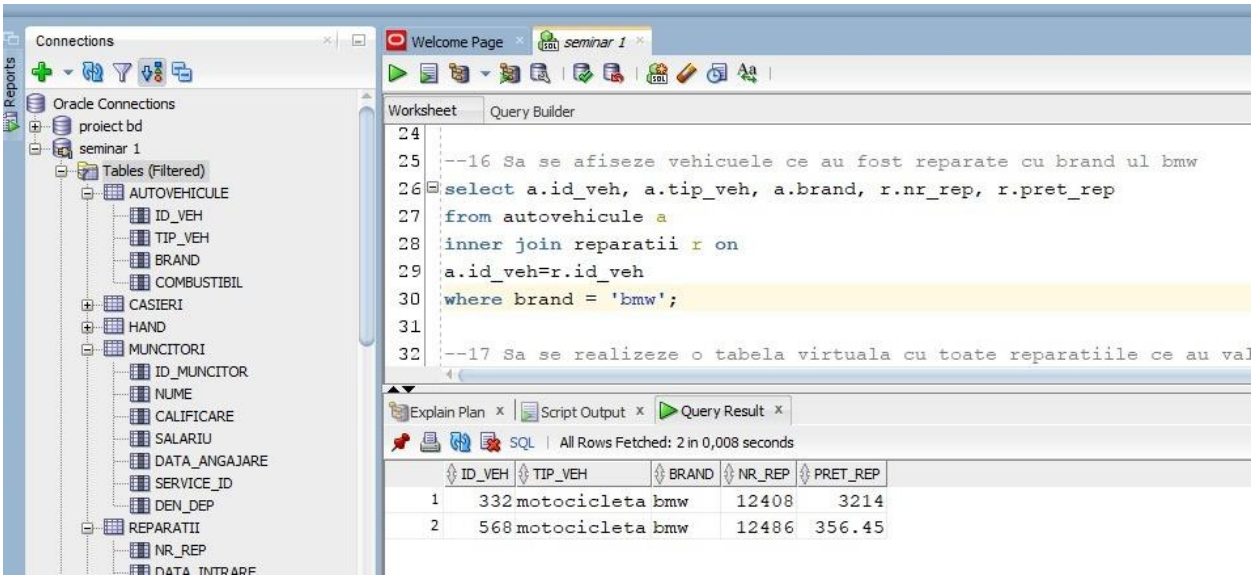
--15 Sa se selecteze motocicletele dar care nu au brandul bmw

```
select id_veh, tip_veh, brand
from autovehicule
where tip_veh='motocicleta'
intersect
select id_veh, tip_veh, brand
from autovehicule
where brand not in ('bmw');
```



--16 Sa se afiseze vehicuele ce au fost reparate cu brand ul bmw

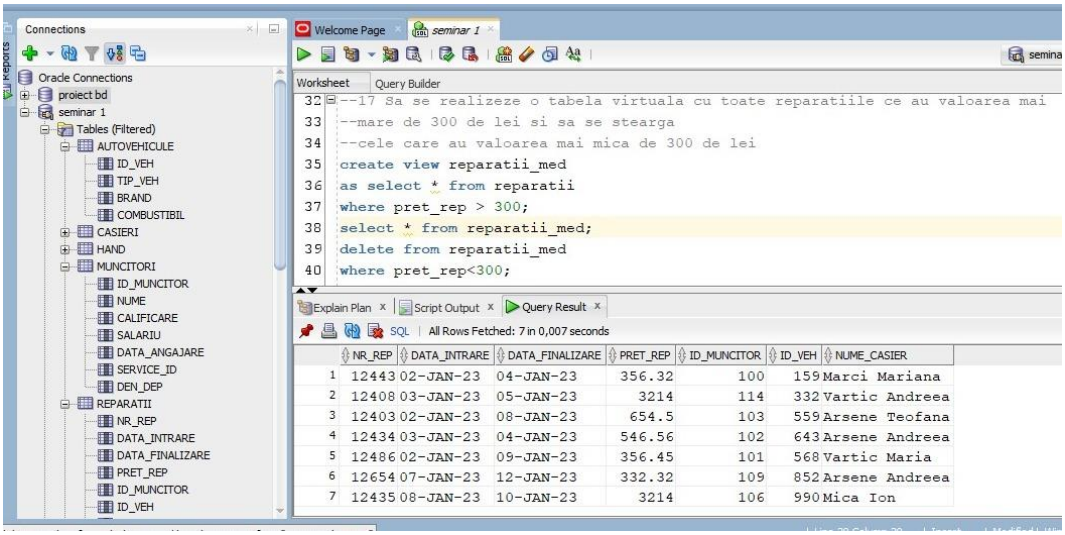
```
select a.id_veh, a.tip_veh, a.brand, r.nr_rep, r.pret_rep
from autovehicule a
inner join reparatii r on
a.id_veh=r.id_veh
where brand = 'bmw';
```



--17 Sa se realizeze o tabela virtuala cu toate reparatiile ce au valoarea mai

--mare de 300 de lei si sa se stearga cele care au valoarea mai mica de 300 de lei

```
create view reparatii_medii
as select * from reparatii
where pret_rep > 300;
select * from reparatii_medii;
delete from reparatii_medii
where pret_rep<300;
```



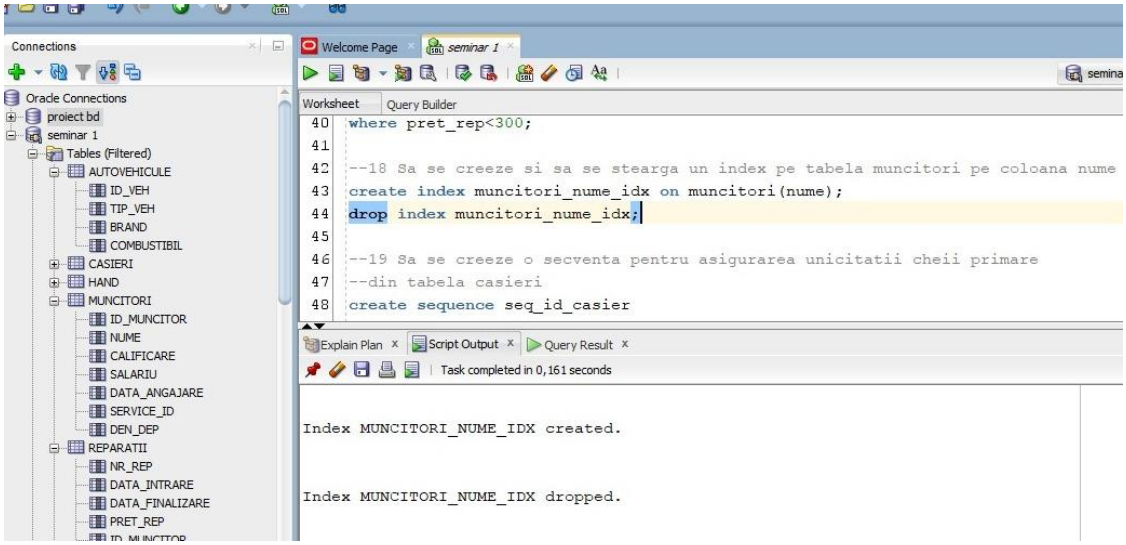
--18 Sa se creeze si sa se stearga un index pe tabela muncitori pe coloana nume

create index muncitori_nume_idx on muncitori(nume);

select * from user_indexes;

drop index muncitori_nume_idx;

select id_casier from casieri;



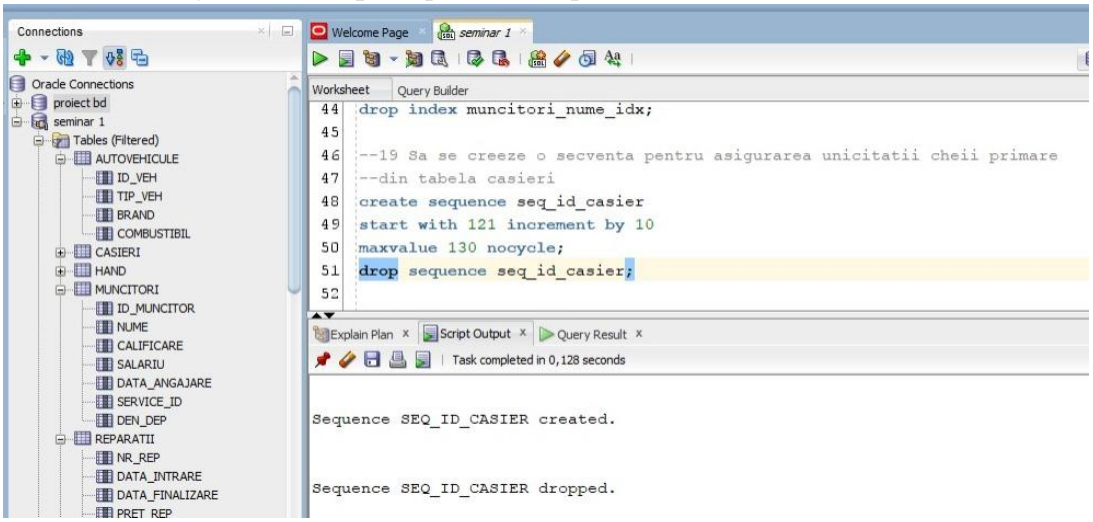
--19 Sa se creeze o secventa pentru asigurarea unicitatii cheii primare

--din tabela casieri

create sequence seq_id_casier

start with 121 increment by 10

maxvalue 130 nocycle; drop sequence seq_id_casier;



--20 Sa se creeze un sinonim pentru tabela Muncitori

create synonym nume for muncitori;

select* from user_synonyms;

drop synonym nume;