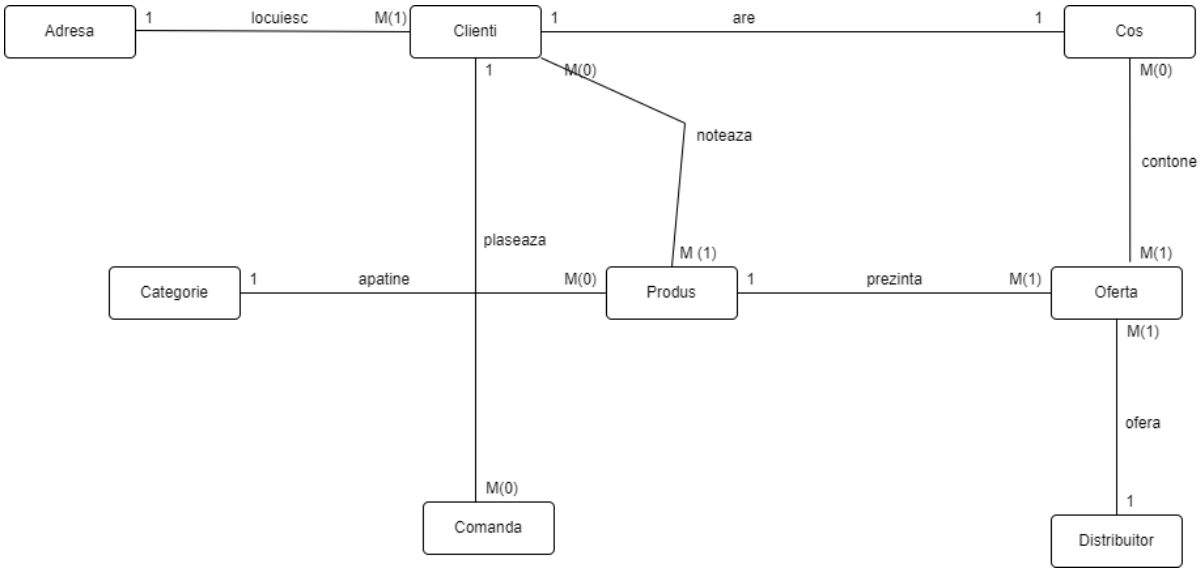
Gestionarea unui magazin de haine online

1)Descrierea bazei de date

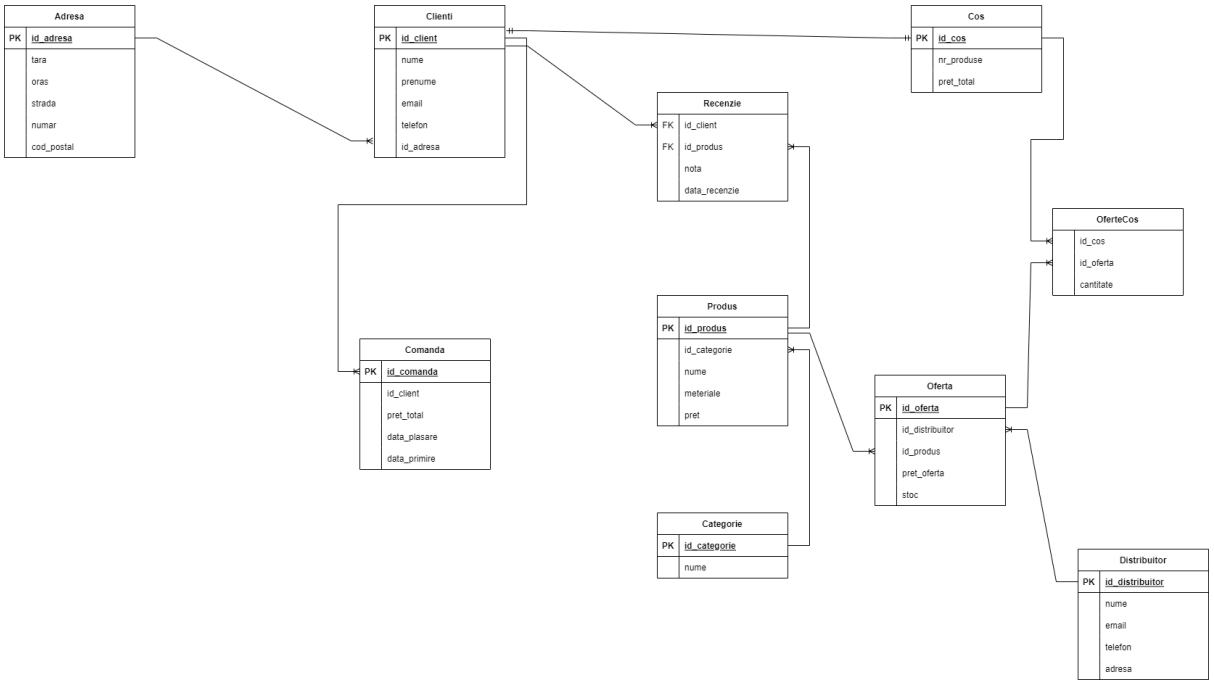
Am ales sa construiesc o baza de date pentru gestionarea unui magazin de haine online. Aceasta baza de date contine informatii despre produse, care fac parte dintr-o categorie. Aceste produse sunt vandute de diferiti distribuitori, fiecare distribuitor avand propria oferta pentru un produs. Clienti magazinul pot pune in cosul lor ofertele pe care doresc sa le achizitioneze si sa dea comanda. Dupa ce comanda ii este livrata clientului, el poate sa dea o recenzii produselor pe care le-a comandat.

In baza de date a magazinului avem 8 entitati independente: Adresa, Clienti, Produs, Categorie, Comanda, Cos, Oferta si Distribuitor si 2 tabele asociative: Recenzie si OfertaCos.

2)Diagrama Entitate Relatie



3)Diagrama Conceptula:



4)Implementarea tabelelor:

```
create table Adresa
    (
    id_adresa NUMBER(10)CONSTRAINT pk_adresa PRIMARY KEY,
    tara VARCHAR2(25) NOT NULL ,
    oras VARCHAR2(25) NOT NULL ,
    strada VARCHAR2(25) NOT NULL ,
    numar NUMBER(10) NOT NULL,
    cod_postal VARCHAR2(25) NOT NULL
    );


create table  Clienti
   (
    id_client NUMBER(10)CONSTRAINT pk_client PRIMARY KEY,
          nume VARCHAR2(25) NOT NULL ,
          prenume VARCHAR2(25) NOT NULL ,
          email VARCHAR2(50) UNIQUE NOT NULL ,
          telefon VARCHAR2(15) UNIQUE NOT NULL ,
    id_adresa NUMBER(10)CONSTRAINT fk_adresa REFERENCES
Adresa(id_adresa) ON DELETE CASCADE
    );
```

```
create table Comanda
   (
    id_comanda NUMBER(10)CONSTRAINT pk_comanda PRIMARY KEY,
    id_client NUMBER(10) CONSTRAINT fk_client REFERENCES Clienti(id_client)
ON DELETE CASCADE,
    pret_total NUMBER(8,2) NOT NULL,
    data_plasare DATE NOT NULL,
    data_primire DATE
   );

create table Categorie
   (
    id_categorie NUMBER(10)CONSTRAINT pk_categorie PRIMARY KEY,
    nume VARCHAR2(30) NOT NULL
   );


create table Produs
   (
    id_produs NUMBER(10)CONSTRAINT pk_produs PRIMARY KEY,
    id_categorie CONSTRAINT fk_categorie REFERENCES Categorie(id_categorie)
ON DELETE CASCADE,
    nume VARCHAR2(30) NOT NULL ,
    materiale VARCHAR2(25) NOT NULL ,
    pret NUMBER(8,2) NOT NULL
   );




create table Recenzie
   (
    id_client NUMBER(10) NOT NULL,
    id_produs NUMBER(10) NOT NULL,
    nota NUMBER(2) NOT NULL,
    data_recenzie DATE NOT NULL
   );


create table Distribuitor
   (
    id_distribuitor NUMBER(10) CONSTRAINT pk_distribuitor PRIMARY KEY,
    nume VARCHAR2(30) NOT NULL ,
```

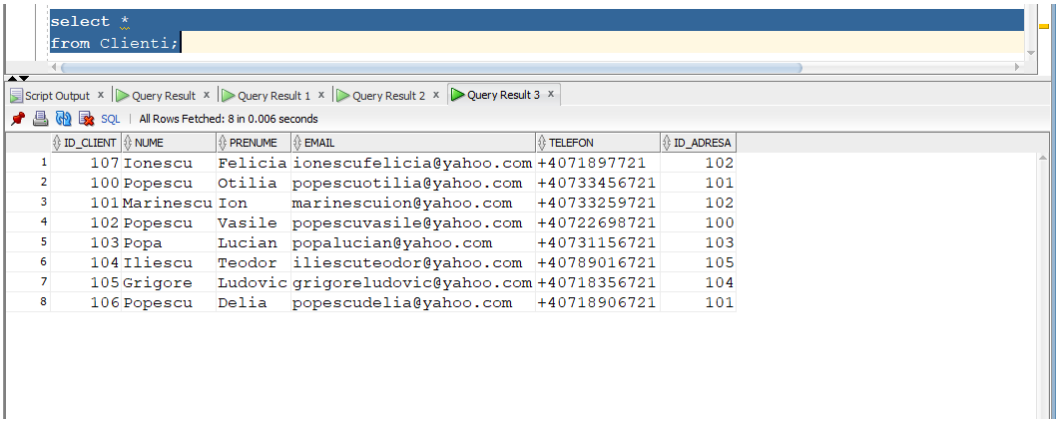
```
    email VARCHAR2(30) NOT NULL ,
    telefon VARCHAR2(30) NOT NULL ,
    adresa VARCHAR2(30) NOT NULL
   );


create table Cos
   (
    id_cos NUMBER(10)CONSTRAINT pk_cos PRIMARY KEY,
    nr_produse NUMBER(3) NOT NULL,
    pret_total NUMBER(10,2) NOT NULL
   );


create table Oferta
   (
    id_oferta NUMBER(10)CONSTRAINT pk_oferta PRIMARY KEY,
    id_distribuitor NUMBER(10) CONSTRAINT fk_distribuitor REFERENCES
Distribuitor(id_distribuitor) ON DELETE CASCADE,
    id_produs NUMBER(10) CONSTRAINT fk_produs REFERENCES
Produs(id_produs) ON DELETE CASCADE,
    pret_oferta NUMBER(8,2) NOT NULL,
    stoc NUMBER(10) NOT NULL
   );




create table OferteCos
   (
    id_cos NUMBER(10) CONSTRAINT fk_cos REFERENCES Cos(id_cos) ON
DELETE CASCADE,
    id_oferta NUMBER(10) CONSTRAINT fk_oferta REFERENCES Oferta(id_oferta)
ON DELETE CASCADE,
    contitate NUMBER(10) NOT NULL
   );
```

5)Adaugarea informatiilor in tabele:

```
insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(100, 'Popescu', 'Otilia', 'popescuotilia@yahoo.com', '+40733456721', 101);

insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
```

values(101, 'Marinescu', 'Ion', 'marinescuion@yahoo.com', '+40733259721', 102);

```
insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(102, 'Popescu', 'Vasile', 'popescuvasile@yahoo.com', '+40722698721',
100);

insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(103, 'Popa', 'Lucian', 'popalucian@yahoo.com', '+40731156721', 103);

insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(104, 'Iliescu', 'Teodor', 'iliescuteodor@yahoo.com', '+40789016721', 105);

insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(105, 'Grigore', 'Ludovic', 'grigoreludovic@yahoo.com', '+40718356721',
104);

insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(106, 'Popescu', 'Delia', 'popescudelia@yahoo.com', '+40718906721', 101);

insert into Clienti (id_client, nume, prenume, email, telefon, id_adresa)
   values(107, 'Ionescu', 'Felicia', 'ionescufelicia@yahoo.com', '+4071897721', 102);
```



	ID_CLIENT	NUME	PRENUME	EMAIL	TELEFON	ID_ADRESA
1	107	Ionescu	Felicia	ionescufelicia@yahoo.com	+4071897721	102
2	100	Popescu	Otilia	popescuotilia@yahoo.com	+40733456721	101
3	101	Marinescu	Ion	marinescuion@yahoo.com	+40733259721	102
4	102	Popescu	Vasile	popescuvasile@yahoo.com	+40722698721	100
5	103	Popa	Lucian	popalucian@yahoo.com	+40731156721	103
6	104	Iliescu	Teodor	iliescuteodor@yahoo.com	+40789016721	105
7	105	Grigore	Ludovic	grigoreludovic@yahoo.com	+40718356721	104
8	106	Popescu	Delia	popescudelia@yahoo.com	+40718906721	101

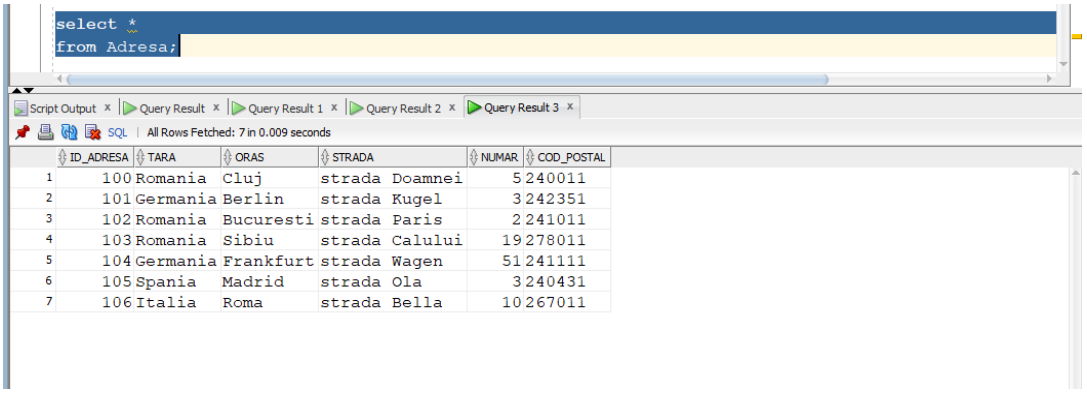
```
insert into Adresa(id_adresa, tara, oras, strada, numar, cod_postal)
   values(100, 'Romania', 'Cluj', 'strada Doamnei', 5, '240011');

insert into Adresa(id_adresa, tara, oras, strada, numar, cod_postal)
   values(101, 'Germania', 'Berlin', 'strada Kugel', 3, '242351');

insert into Adresa(id_adresa,  tara, oras, strada, numar, cod_postal)
  values(102, 'Romania', 'Bucuresti', 'strada Paris', 2, '241011');

insert into Adresa(id_adresa, tara, oras, strada, numar, cod_postal)
```

values(103, 'Romania', 'Sibiu', 'strada Calului', 19, '278011');

insert into Adresa(id_adresa, tara, oras, strada, numar, cod_postal)
values(104, 'Germania', 'Frankfurt', 'strada Wagen', 51, '241111');

insert into Adresa(id_adresa, tara, oras, strada, numar, cod_postal)
values(105, 'Spania', 'Madrid', 'strada Ola', 3, '240431');

insert into Adresa(id_adresa, tara, oras, strada, numar, cod_postal)
values(106, 'Italia', 'Roma', 'strada Bella', 10, '267011');



	ID_ADRESA	TARA	ORAS	STRADA	NUMAR	COD_POSTAL
1	100	Romania	Cluj	strada Doamnei	5	240011
2	101	Germania	Berlin	strada Kugel	3	242351
3	102	Romania	Bucuresti	strada Paris	2	241011
4	103	Romania	Sibiu	strada Calului	19	278011
5	104	Germania	Frankfurt	strada Wagen	51	241111
6	105	Spania	Madrid	strada Ola	3	240431
7	106	Italia	Roma	strada Bella	10	267011

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(100, 105, '950.99', sysdate - 20.5, sysdate - 15.4);

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(101, 103, '570.00', sysdate - 27.5, sysdate - 18.4);

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(102, 101, '1400.90', sysdate - 21.5, sysdate - 10.4);

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(103, 100, '1000.99', sysdate - 30.5, sysdate - 19.4);

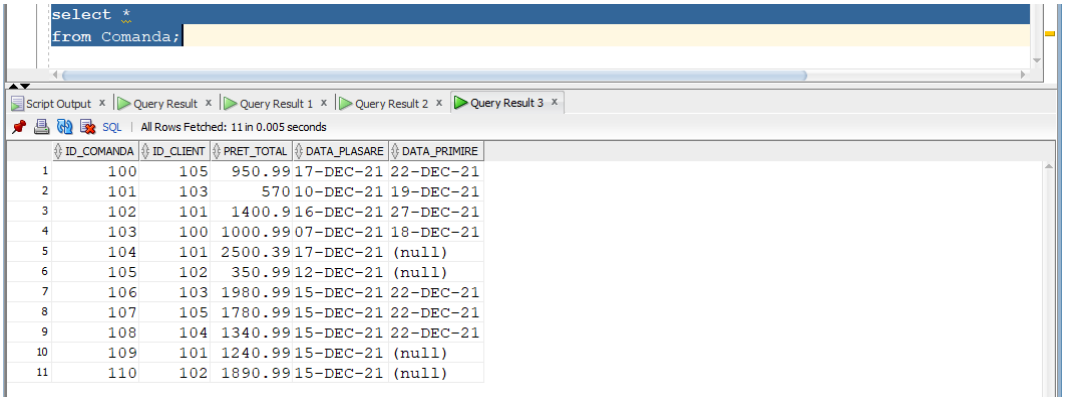
insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(104, 101, '2500.39', sysdate - 20.5, NULL);

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(105, 102, '350.99', sysdate - 25.5, NULL);

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(106, 103, '1980.99', sysdate - 22.5, sysdate - 15.4);

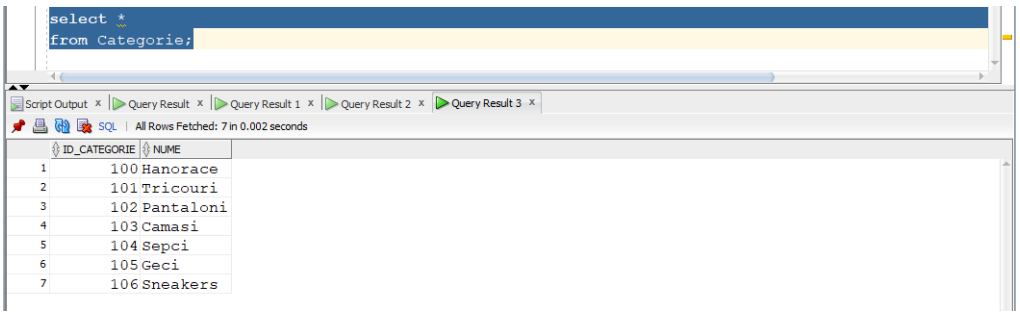
insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
values(107, 105, '1780.99', sysdate - 22.5, sysdate - 15.4);

```
insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
   values(108, 104, '1340.99', sysdate - 22.5, sysdate - 15.4 );

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
   values(109, 101, '1240.99', sysdate - 22.5, NULL );

insert into Comanda(id_comanda, id_client, pret_total, data_plasare, data_primire)
   values(110, 102, '1890.99', sysdate - 22.5, NULL );
```

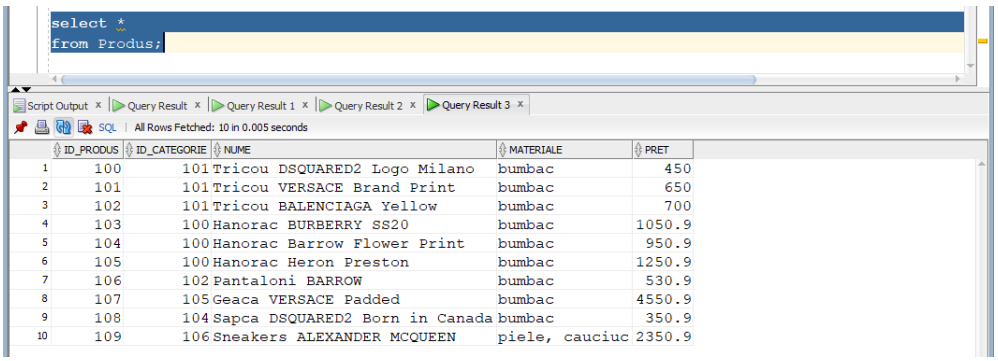


	ID_COMANDA	ID_CLIENT	PRET_TOTAL	DATA_PLASARE	DATA_PRIMIRE
1	100	105	950.99	17-DEC-21	22-DEC-21
2	101	103	570	10-DEC-21	19-DEC-21
3	102	101	1400.9	16-DEC-21	27-DEC-21
4	103	100	1000.99	07-DEC-21	18-DEC-21
5	104	101	2500.39	17-DEC-21	(null)
6	105	102	350.99	12-DEC-21	(null)
7	106	103	1980.99	15-DEC-21	22-DEC-21
8	107	105	1780.99	15-DEC-21	22-DEC-21
9	108	104	1340.99	15-DEC-21	22-DEC-21
10	109	101	1240.99	15-DEC-21	(null)
11	110	102	1890.99	15-DEC-21	(null)

```
insert into Categorie(id_categorie, nume)
   values(100, 'Hanorace');

insert into Categorie(id_categorie, nume)
   values(101, 'Tricouri');

insert into Categorie(id_categorie, nume)
   values(102, 'Pantaloni');

insert into Categorie(id_categorie, nume)
   values(103, 'Camasi');

insert into Categorie(id_categorie, nume)
   values(104, 'Sepci');

insert into Categorie(id_categorie, nume)
   values(105, 'Geci');

insert into Categorie(id_categorie, nume)
   values(106, 'Sneakers');
```




```
insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (100, 101, 'Tricou DSQUARED2 Logo Milano', 'bumbac', '450.00');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (101, 101, 'Tricou VERSACE Brand Print', 'bumbac', '650.00');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (102, 101, 'Tricou BALENCIAGA Yellow', 'bumbac', '700.00');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (103, 100, 'Hanorac BURBERRY SS20', 'bumbac', '1050.90');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (104, 100, 'Hanorac Barrow Flower Print', 'bumbac', '950.90');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (105, 100, 'Hanorac Heron Preston', 'bumbac', '1250.90');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (106, 102, 'Pantaloni BARROW', 'bumbac', '530.90');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (107, 105, 'Geaca VERSACE Padded', 'bumbac', '4550.90');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (108, 104, 'Sapca DSQUARED2 Born in Canada', 'bumbac', '350.90');

insert into Produs(id_produs, id_categorie, nume, materiale , pret)
   values (109, 106, 'Sneakers ALEXANDER MCQUEEN', 'piele, cauciuc', '2350.90');
```



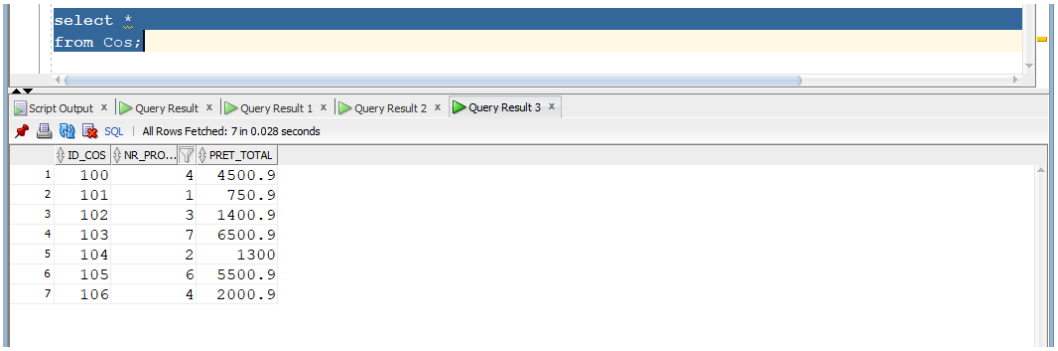
```
select *
from Produs;
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

All Rows Fetched: 10 in 0.005 seconds

	ID_PRODUS	ID_CATEGORIE	NUME	MATERIALE	PRET
1	100	101	Tricou DSQUARED2 Logo Milano	bumbac	450
2	101	101	Tricou VERSACE Brand Print	bumbac	650
3	102	101	Tricou BALENCIAGA Yellow	bumbac	700
4	103	100	Hanorac BURBERRY SS20	bumbac	1050.9
5	104	100	Hanorac Barrow Flower Print	bumbac	950.9
6	105	100	Hanorac Heron Preston	bumbac	1250.9
7	106	102	Pantaloni BARROW	bumbac	530.9
8	107	105	Geaca VERSACE Padded	bumbac	4550.9
9	108	104	Sapca DSQUARED2 Born in Canada	bumbac	350.9
10	109	106	Sneakers ALEXANDER MCQUEEN	piele, cauciuc	2350.9

```
insert into Cos(id_cos, nr_produse, pret_total)
   values(100, 4, '4500.90');

insert into Cos(id_cos, nr_produse, pret_total)
   values(101, 1, '750.90');

insert into Cos(id_cos, nr_produse, pret_total)
   values(102, 3, '1400.90');

insert into Cos(id_cos, nr_produse, pret_total)
   values(103, 7, '6500.90');

insert into Cos(id_cos, nr_produse, pret_total)
   values(104, 2, '1300.00');

insert into Cos(id_cos, nr_produse, pret_total)
   values(105, 6, '5500.90');

insert into Cos(id_cos, nr_produse, pret_total)
   values(106, 4, '2000.90');
```



```
select *
from Cos;
```

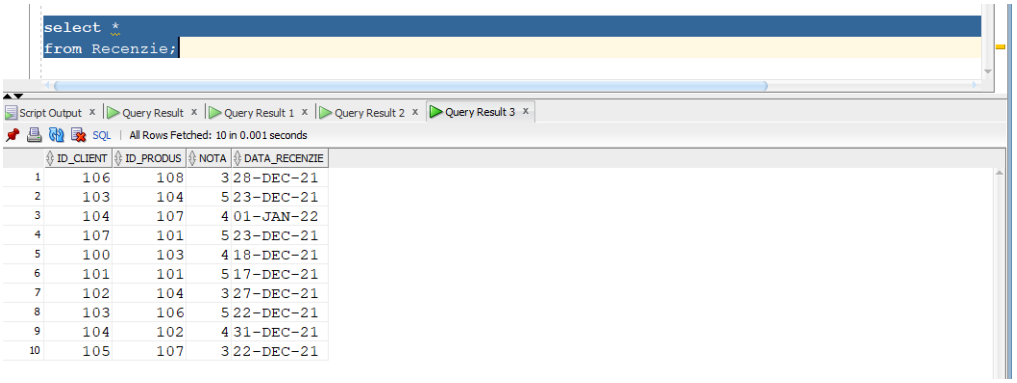
Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

All Rows Fetched: 7 in 0.028 seconds

	ID_COS	NR_PRO...	PRET_TOTAL
1	100	4	4500.9
2	101	1	750.9
3	102	3	1400.9
4	103	7	6500.9
5	104	2	1300
6	105	6	5500.9
7	106	4	2000.9

```
insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(100, 103, 4, sysdate - 19.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(101, 101, 5, sysdate - 20.4);
```

```
insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(102, 104, 3, sysdate - 10.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(103, 106, 5, sysdate - 15.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(104, 102, 4, sysdate - 6.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(105, 107, 3, sysdate - 15.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(106, 108, 3, sysdate - 10.4);


insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(103, 104, 5, sysdate - 15.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(104, 107, 4, sysdate - 6.4);

insert into Recenzie(id_client, id_produs, nota, data_recenzie)
   values(107, 101, 5, sysdate - 15.4);
```




```
insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
   values(100,'Capodopera12', 'capodopera12@yahoo.com', '+40722698721',
'Bucuresti, Romania');

insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
   values(101,'Farfetch', 'farfetch@yahoo.com', '+40722634521', 'Madris, Spania');

insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
```

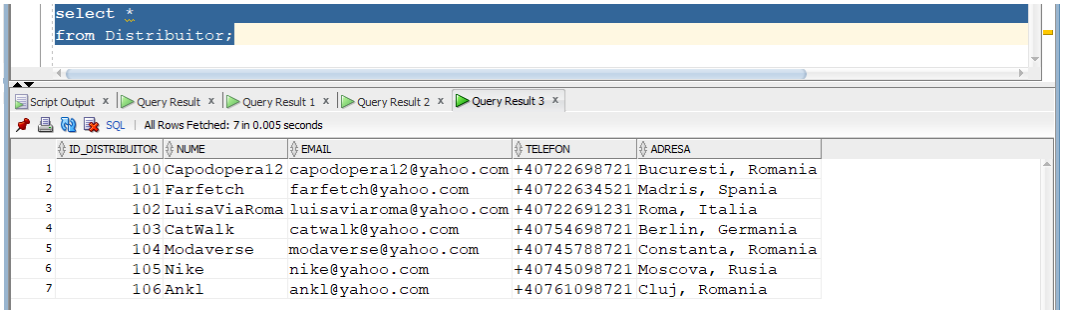
values(102,'LuisaViaRoma', 'luisaviaroma@yahoo.com', '+40722691231', 'Roma, Italia');

insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
values(103,'CatWalk', 'catwalk@yahoo.com', '+40754698721', 'Berlin, Germania');

insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
values(104,'Modaverse', 'modaverse@yahoo.com', '+40745788721', 'Constanta, Romania');

insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
values(105,'Nike', 'nike@yahoo.com', '+40745098721', 'Moscova, Rusia');

insert into Distribuitor(id_distribuitor, nume, email, telefon, adresa)
values(106,'Ankl', 'ankl@yahoo.com', '+40761098721', 'Cluj, Romania');



	ID_DISTRIBUITOR	NUME	EMAIL	TELEFON	ADRESA
1	100	Capodopera12	capodopera12@yahoo.com	+40722698721	Bucuresti, Romania
2	101	Farfetch	farfetch@yahoo.com	+40722634521	Madris, Spania
3	102	LuisaViaRoma	luisaviaroma@yahoo.com	+40722691231	Roma, Italia
4	103	CatWalk	catwalk@yahoo.com	+40754698721	Berlin, Germania
5	104	Modaverse	modaverse@yahoo.com	+40745788721	Constanta, Romania
6	105	Nike	nike@yahoo.com	+40745098721	Moscova, Rusia
7	106	Ankl	ankl@yahoo.com	+40761098721	Cluj, Romania

insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(100, 101, 103, '950.90', 3);

insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(101, 100, 102, '650.90', 4);

insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(102, 101, 101, '550.90', 1);

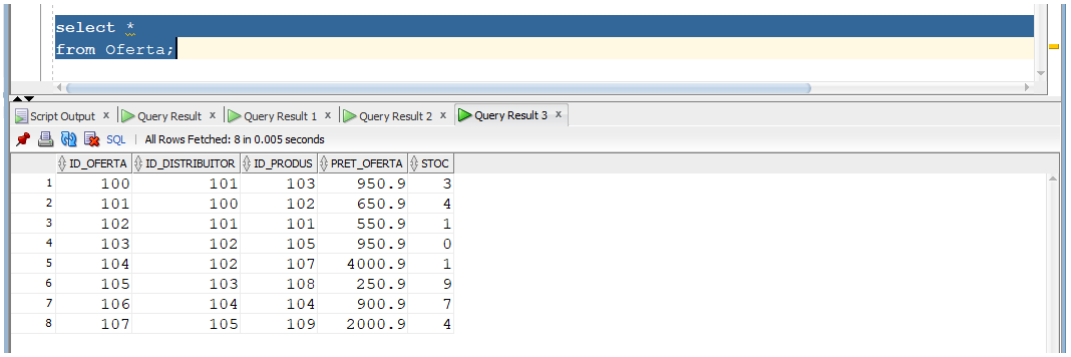
insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(103, 102, 105, '950.90', 0);

insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(104, 102, 107, '4000.90', 1);

insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(105, 103, 108, '250.90', 9);

insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
values(106, 104, 104, '900.90', 7);

```
insert into Oferta(id_oferta, id_distribuitor, id_produs, pret_oferta, stoc)
   values(107, 105, 109, '2000.90', 4);
```



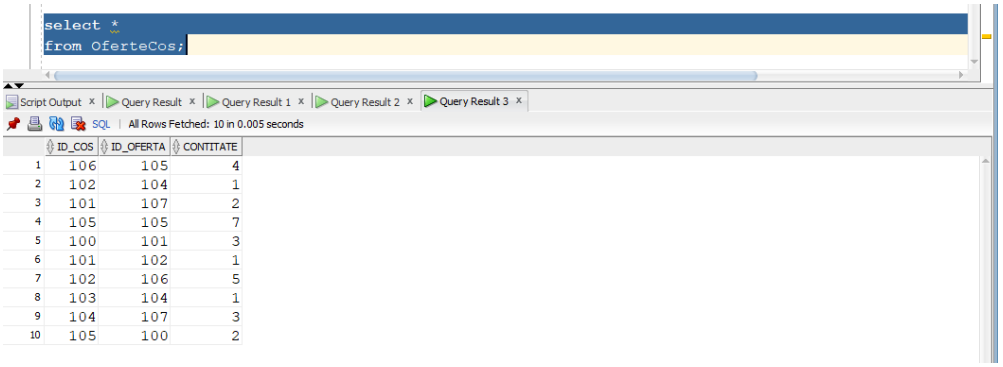
```
select *
from Oferta;
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

All Rows Fetched: 8 in 0.005 seconds

	ID_OFERTA	ID_DISTRIBUITOR	ID_PRODUS	PRET_OFERTA	STOC
1	100	101	103	950.9	3
2	101	100	102	650.9	4
3	102	101	101	550.9	1
4	103	102	105	950.9	0
5	104	102	107	4000.9	1
6	105	103	108	250.9	9
7	106	104	104	900.9	7
8	107	105	109	2000.9	4

```
insert into OferteCos(id_cos, id_oferta, contitate)
   values(100, 101, 3);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(101, 102, 1);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(102, 106, 5);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(103, 104, 1);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(104, 107, 3);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(105, 100, 2);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(106, 105, 4);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(102, 104, 1);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(101, 107, 2);

insert into OferteCos(id_cos, id_oferta, contitate)
   values(105, 105, 7);
```

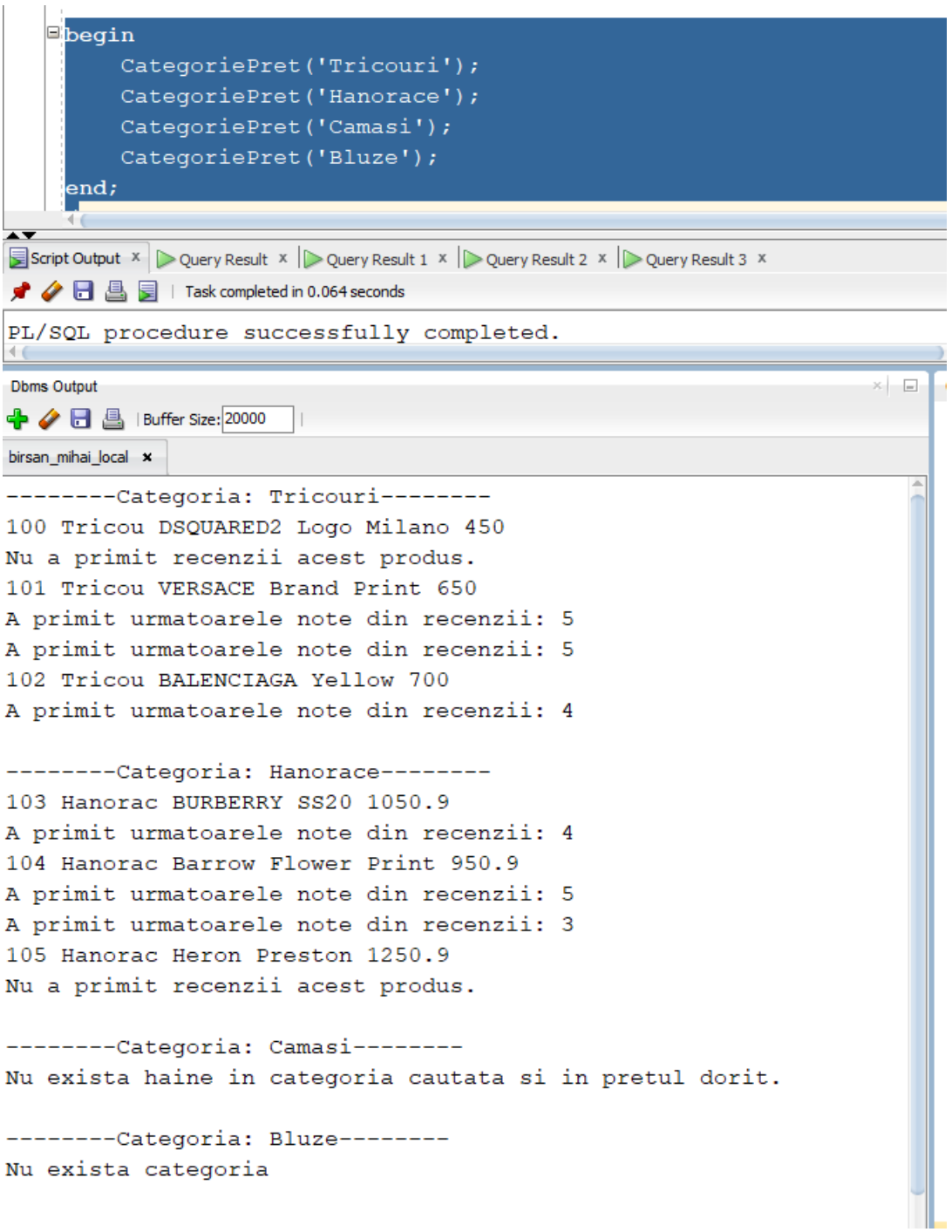


6)Subprogram stocat - 2 tipuri de colectii

Scrieti un subprogram care sa afiseze toate produsele dintr-o categorie data ca parametru, fiecare produs fiind urmat de toate notele primite din recenzii.

```
create or replace procedure CategoriePret (
   v_categorie Categorie.nume %type

) as
   type t_nota is table of Recenzie.nota%type; --tablou imbricat
   v_nota t_nota := t_nota();
   type tablou_indexat is table of Produs %rowtype index by binary_integer; --tablou
indexat
   v_produs tablou_indexat;
   v_id_categorie Categorie.id_categorie %type;
   e_no_haine     exception;
   --e_no_nota     exception;
begin
   DBMS_OUTPUT.PUT_LINE('--------Categoria: ' || v_categorie || '--------');
   select id_categorie
   into v_id_categorie
   from Categorie
   where lower(nume) = lower(v_categorie);

   select *
   bulk collect into v_produs
   from Produs
   where id_categorie = v_id_categorie;



   if v_produs.count != 0 then
      for i in v_produs.first..v_produs.last loop
               DBMS_OUTPUT.PUT_LINE(v_produs(i).id_produs || ' ' ||
v_produs(i).nume || ' ' || v_produs(i).pret);
```

```
                select nota
                bulk collect into v_nota
                from Recenzie
                where id_produs = v_produs(i).id_produs;

                if v_nota.count != 0 then
                   for j in v_nota.first..v_nota.last loop
                      DBMS_OUTPUT.PUT_LINE('A primit urmatoarele note din
recenzii: '  || v_nota(j));
                   end loop;
                else
                   DBMS_OUTPUT.PUT_LINE('Nu a primit recenzii acest produs.');
                end if;
       end loop;
   else
      raise e_no_haine;
   end if;
   DBMS_OUTPUT.NEW_LINE;

exception
   when e_no_haine then
      DBMS_OUTPUT.PUT_LINE('Nu exista haine in categoria cautata si in pretul
dorit.');
      DBMS_OUTPUT.NEW_LINE;
   when no_data_found then
      DBMS_OUTPUT.PUT_LINE('Nu exista categoria');
      DBMS_OUTPUT.NEW_LINE;
   when others then
      DBMS_OUTPUT.PUT_LINE('Alta eroare.');
      DBMS_OUTPUT.NEW_LINE;
end CategoriePret;
/

begin
   CategoriePret('Tricouri');
   CategoriePret('Hanorace');
   CategoriePret('Camasi');
   CategoriePret('Bluze');
end;
/
```



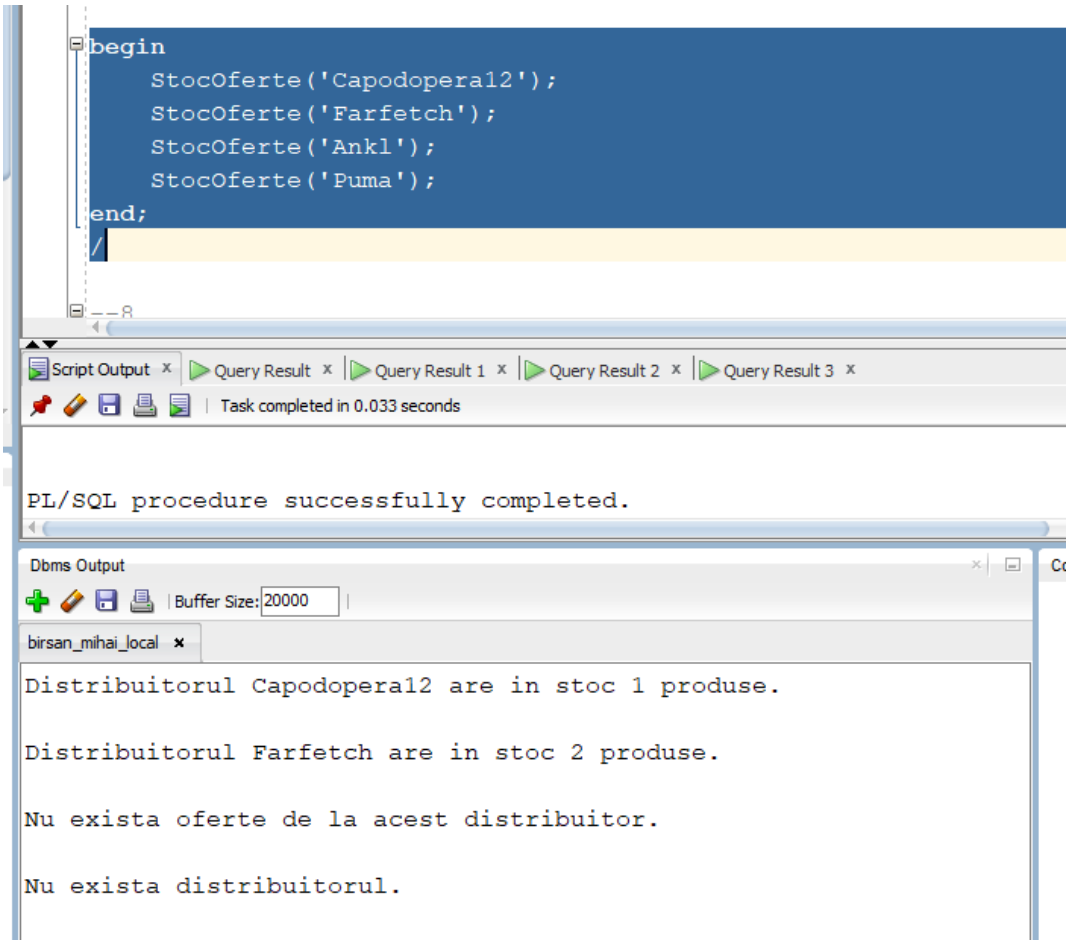
7)Subprogram stocat - 1 tip de cursor

Scrieti un subprogram care afiseaza cate produse sunt in stoc din ofertele unui distribuitor dat ca parametru.

```
create or replace procedure StocOferte (
   v_distrib Distribuitor.nume %type
```

```
) as
   v_nr number := 0;
   v_nr1 number := 0;
   v_id_oferta number;
   v_id_distribuitor1 number;
   v_stoc number;
   v_nume Distribuitor.nume %type;
   v_id_distribuitor Distribuitor.id_distribuitor %type;
   cursor c is
      select  id_oferta, o.id_distribuitor, stoc
      from Oferta o
      join Distribuitor d
      on o.id_distribuitor = d.id_distribuitor;
   e_no_stoc     exception;

begin

   select id_distribuitor
   into v_id_distribuitor
   from Distribuitor
   where lower(nume) = lower(v_distrib);

   open c;
   loop

      fetch c into v_id_oferta, v_id_distribuitor1, v_stoc;
      exit when c%notfound;

      if v_id_distribuitor1 = v_id_distribuitor then
         v_nr := v_nr + 1;
         v_nr1 := v_nr1 + v_stoc;

      end if;
   end loop;
   if v_nr > 0 then
      if v_nr1 > 0 then
         DBMS_OUTPUT.PUT_LINE('Distribuitorul ' || v_distrib || ' are in stoc ' || v_nr
|| ' produse.');
         DBMS_OUTPUT.NEW_LINE;
      else
         raise e_no_stoc;
      end if;
   end if;
exception
```

```
    when e_no_stoc then
        DBMS_OUTPUT.PUT_LINE('Nu exista oferte de la acest distribuitor.');
        DBMS_OUTPUT.NEW_LINE;
    when no_data_found then
        DBMS_OUTPUT.PUT_LINE('Nu exista distribuitorul.');
        DBMS_OUTPUT.NEW_LINE;
    when others then
        DBMS_OUTPUT.PUT_LINE('Alta eroare.');
        DBMS_OUTPUT.NEW_LINE;
end StocOferte;
/

begin
    StocOferte('Capodopera12');
    StocOferte('Farfetch');
    StocOferte('Ankl');
    StocOferte('Puma');
end;
/
```



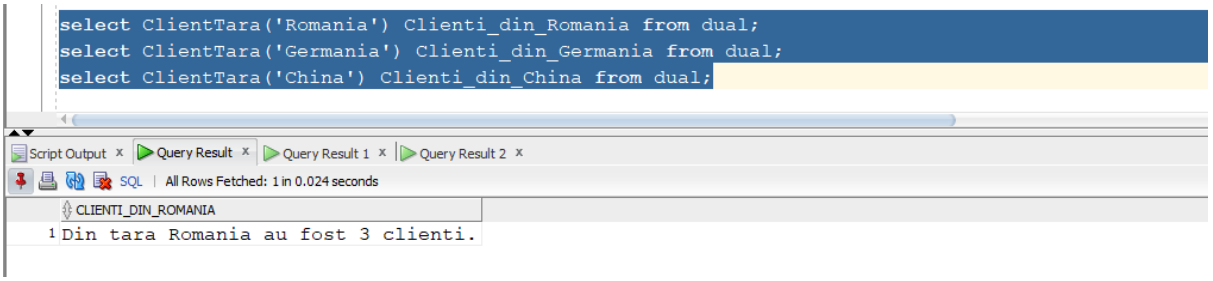
8)Subprogram stocat de tip functie - 3 tabele

Scrieti o functie care sa calculeze numarul de clieti care au dat comenzi, dintr-o tara primita ca parametru.

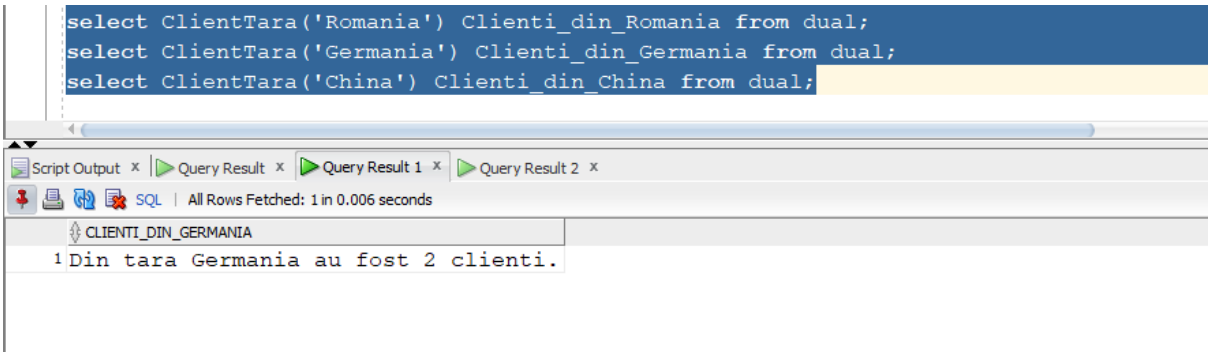
```
create or replace function ClientTara
(
   v_tara Adresa.tara %type
) return varchar2
as

   type t_id_client is table of Clienti.id_client %type; --tabel imbricat
   v_id_client   t_id_client := t_id_client();
   v_nr_comenzi NUMBER;
   V_numar NUMBER :=0;
   e_no_clienti     exception;

begin

   select id_client
   bulk collect into v_id_client
   from Clienti
   where id_adresa in (select id_adresa
                       from Adresa
                       where lower(tara) = lower(v_tara)
                       );

   if v_id_client.count = 0 then
      raise e_no_clienti;
   end if;
   for i in v_id_client.first..v_id_client.last loop

      select count(distinct id_client)
      into v_nr_comenzi
      from Comanda
      where id_client = v_id_client(i);

      v_numar := v_numar + v_nr_comenzi;

   end loop;

   return 'Din tara ' || v_tara || ' au fost ' || to_char(v_numar) || ' clienti.';
```

```
exception
   when e_no_clienti then
      return 'Din tara ' || v_tara  || ' nu au existat momentan clienti.';
      --return 0;
   when others then
      return 'Alta eroare.';
      --return -20005;

end ClientTara;
/
```

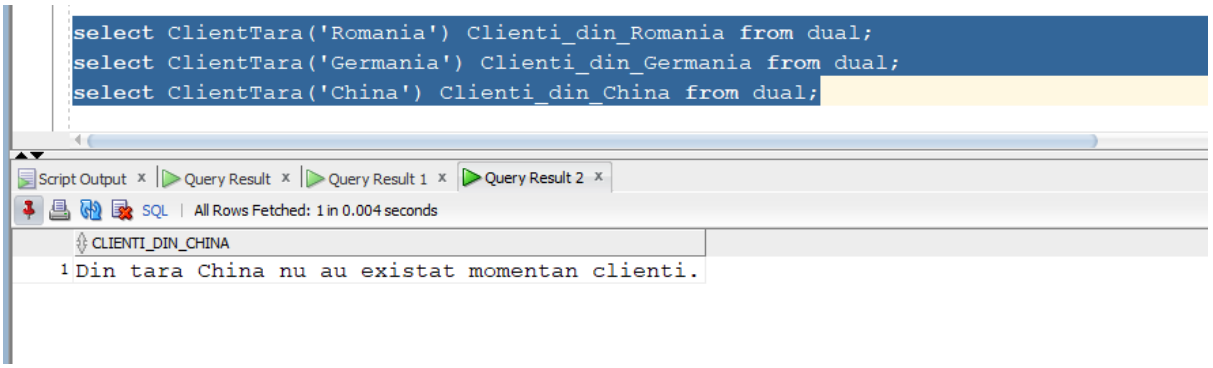
select ClientTara('Romania') Clienti_din_Romania from dual;



select ClientTara('Germania') Clienti_din_Germania from dual;



select ClientTara('China') Clienti_din_China from dual;

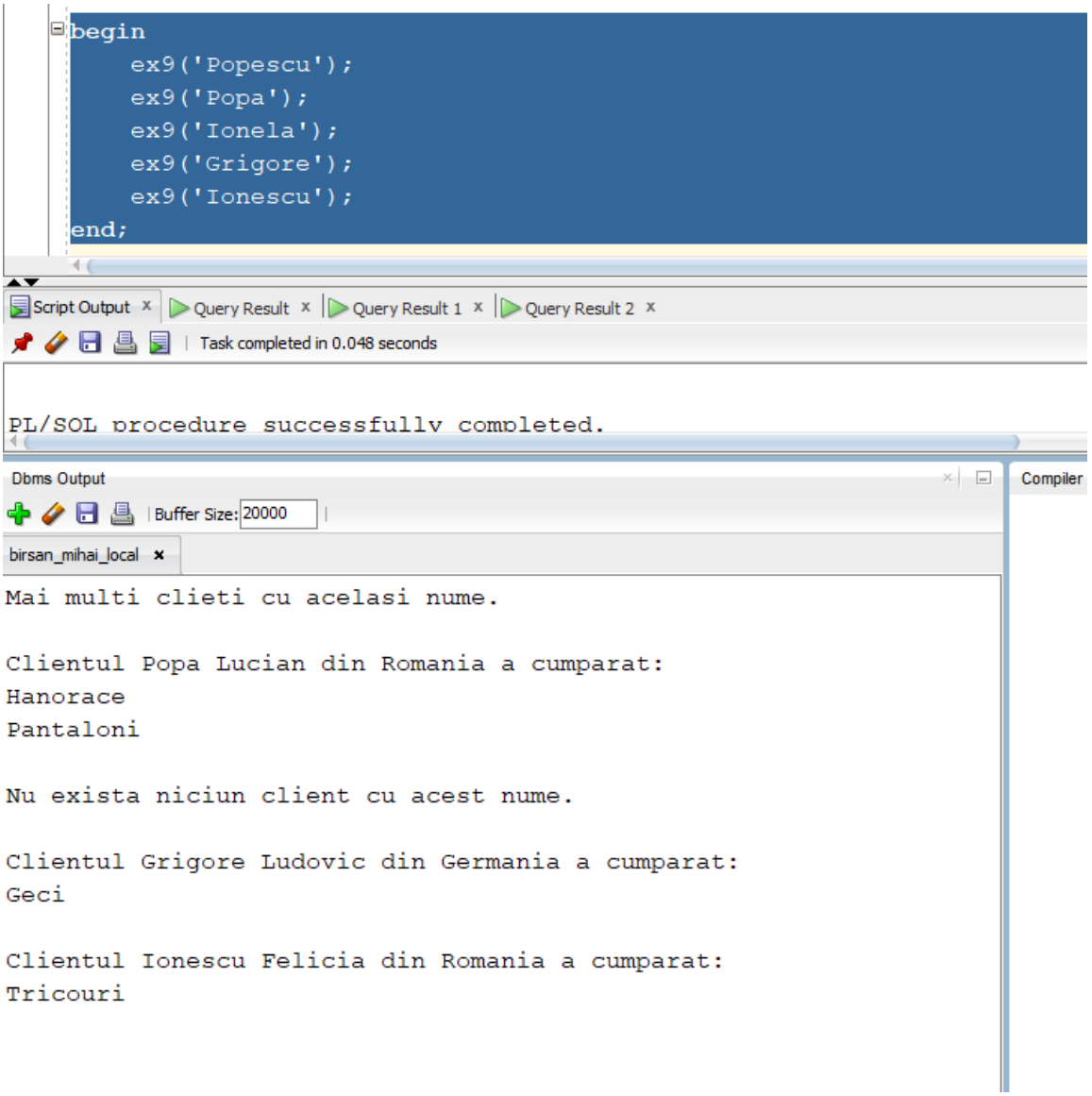


9)Subprogram stocat de tip procedura - 5 tabele

Scrieti o procedura care primeste ca paramentru numele de familie al unui client si afiseaze numele complet al clietului , tara de provenienta si categoriile produselor carora le-a acordat o recenzie.

```
create or replace procedure ex9(
   v_nume Clienti.nume %type
) is
   v_client Clienti%rowtype;

   type t_produs is table of Produs%rowtype;
   v_produs t_produs;

   type t_categorie is table of Categorie.nume %type;
   v_categorie t_categorie;

   v_tara Adresa.tara %type;

begin

   select *
   into v_client
   from Clienti
   where lower(nume) = lower(v_nume);

   select tara
   into v_tara
   from Adresa
   where id_adresa = v_client.id_adresa;

   DBMS_OUTPUT.PUT_LINE('Clientul ' || v_client.nume || ' ' || v_client.prenume || '
din ' || v_tara || ' a cumparat:');

   select distinct Categorie.nume
   bulk collect into v_categorie
   from Categorie
   join Produs using (id_categorie)
   join Recenzie using (id_produs)
   join Clienti using (id_client)
   where id_client = v_client.id_client
   order by 1;
```

```
    if v_categorie.count = 0 then
        DBMS_OUTPUT.PUT_LINE('Acest client nu a cumparat nimic.');
    else
        for i in v_categorie.first..v_categorie.last loop
            DBMS_OUTPUT.PUT_LINE(v_categorie(i));
        end loop;
        DBMS_OUTPUT.NEW_LINE();
    end if;


exception

    when no_data_found then
        DBMS_OUTPUT.PUT_LINE('Nu exista niciun client cu acest nume.');
        DBMS_OUTPUT.NEW_LINE();
    when too_many_rows then
        DBMS_OUTPUT.PUT_LINE('Mai multi clieti cu acelasi nume.');
        DBMS_OUTPUT.NEW_LINE();
    when others then
        DBMS_OUTPUT.PUT_LINE('Alta eroare.');
        DBMS_OUTPUT.NEW_LINE();
end ex9;
/

begin
    ex9('Popescu');
    ex9('Popa');
    ex9('Ionela');
    ex9('Grigore');
    ex9('Ionescu');
end;
```

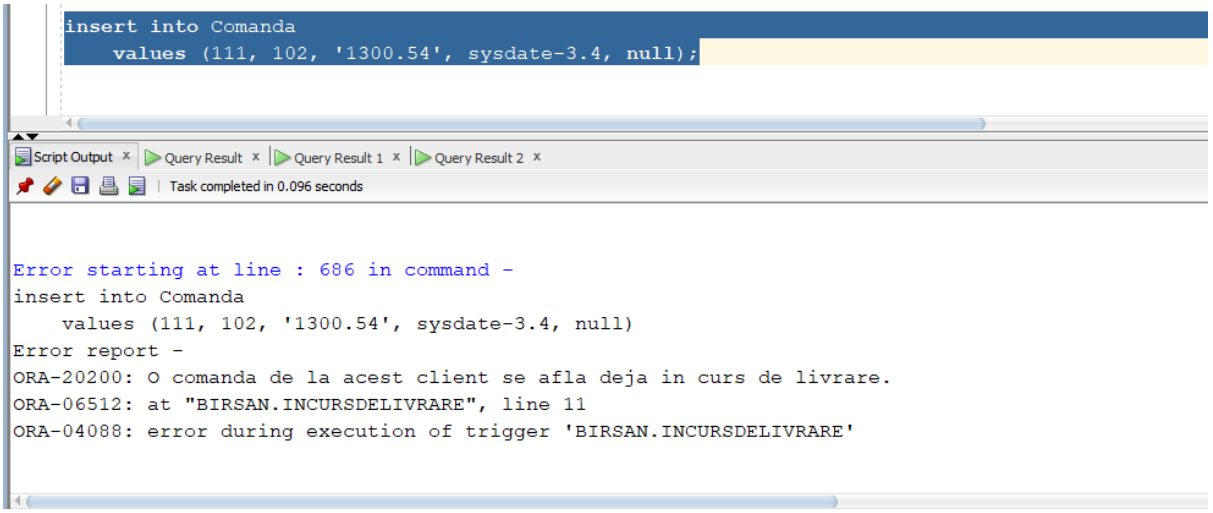


10)Trigger de tip LMD la nivel de comanda

Un client nu poate sa aibe mai mult de o comanda in curs de livrare la acel moment.

```
create or replace trigger InCursDeLivrare
   after insert on Comanda
declare
   nr_comenzi number;
begin
   select max(count(id_comanda))
   into nr_comenzi
   from Comanda
   where data_primire is NULL
   group by id_client;
```

```
    if nr_comenzi > 1 then
        raise_application_error(-20200, 'O comanda de la acest client se afla deja in
curs de livrare.');
    end if;
end;
/

insert into Comanda
    values (111, 102, '1300.54', sysdate-3.4, null);
```

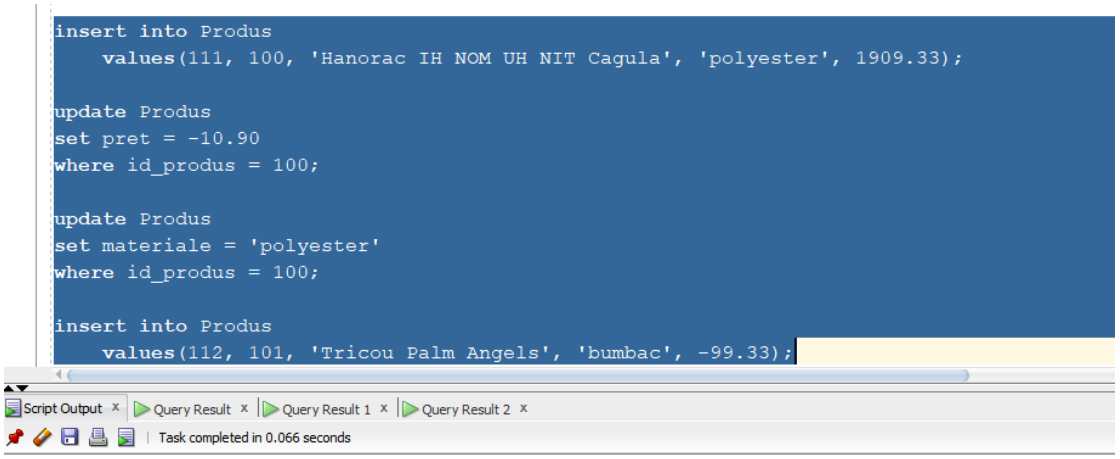


11)Trigger de tip LMD la nivel de linie

Sa se realizeze operatiile de insert si update pentru un produs doar daca se respecta urmatoarele reguli:
– pretul sa nu fie negativ
– materialul sa nu fie polyester

```
create or replace trigger trigger_produs
before insert or update on Produs
for each row
declare

begin

    if inserting then
        if :new.pret < 0.00 then
            raise_application_error(-20005, 'Pretul nu poate sa fie negativ.');
```

```
        end if;

        if lower(:new.materiale) = lower('polyester') then
            raise_application_error(-20010, 'Nu se pot adauga haine din polyester.');
        end if;


    elsif updating ('pret') then
        if :new.pret < 0.00 then
            raise_application_error(-20015, 'Pretul nu poate sa fie negativ.');
        end if;

    elsif updating ('materiale') then
        if lower(:new.materiale) = lower('polyester') then
            raise_application_error(-20010, 'Nu se pot adauga haine din polyester.');
        end if;

    end if;
end;
/

insert into Produs
    values(111, 100, 'Hanorac IH NOM UH NIT Cagula', 'polyester', 1909.33);
```




```
Error starting at line : 728 in command -
insert into Produs
    values(111, 100, 'Hanorac IH NOM UH NIT Cagula', 'polyester', 1909.33)
Error report -
ORA-20010: Nu se pot adauga haine din polyester.
ORA-06512: at "BIRSAN.TRIGGER_PRODUS", line 11
ORA-04088: error during execution of trigger 'BIRSAN.TRIGGER_PRODUS'
```

update Produs
set pret = -10.90
where id_produs = 100;

```
insert into Produs
    values(111, 100, 'Hanorac IH NOM UH NIT Cagula', 'polyester', 1909.33);

update Produs
set pret = -10.90
where id_produs = 100;

update Produs
set materiale = 'polyester'
where id_produs = 100;

insert into Produs
    values(112, 101, 'Tricou Palm Angels', 'bumbac', -99.33);
```

Script Output | Query Result | Query Result 1 | Query Result 2

Task completed in 0.066 seconds

```
Error starting at line : 731 in command -
update Produs
set pret = -10.90
where id_produs = 100
Error report -
ORA-20015: Pretul nu poate sa fie negativ.
ORA-06512: at "BIRSAN.TRIGGER_PRODUS", line 17
ORA-04088: error during execution of trigger 'BIRSAN.TRIGGER_PRODUS'
```

update Produs
set materiale = 'polyester'
where id_produs = 100;

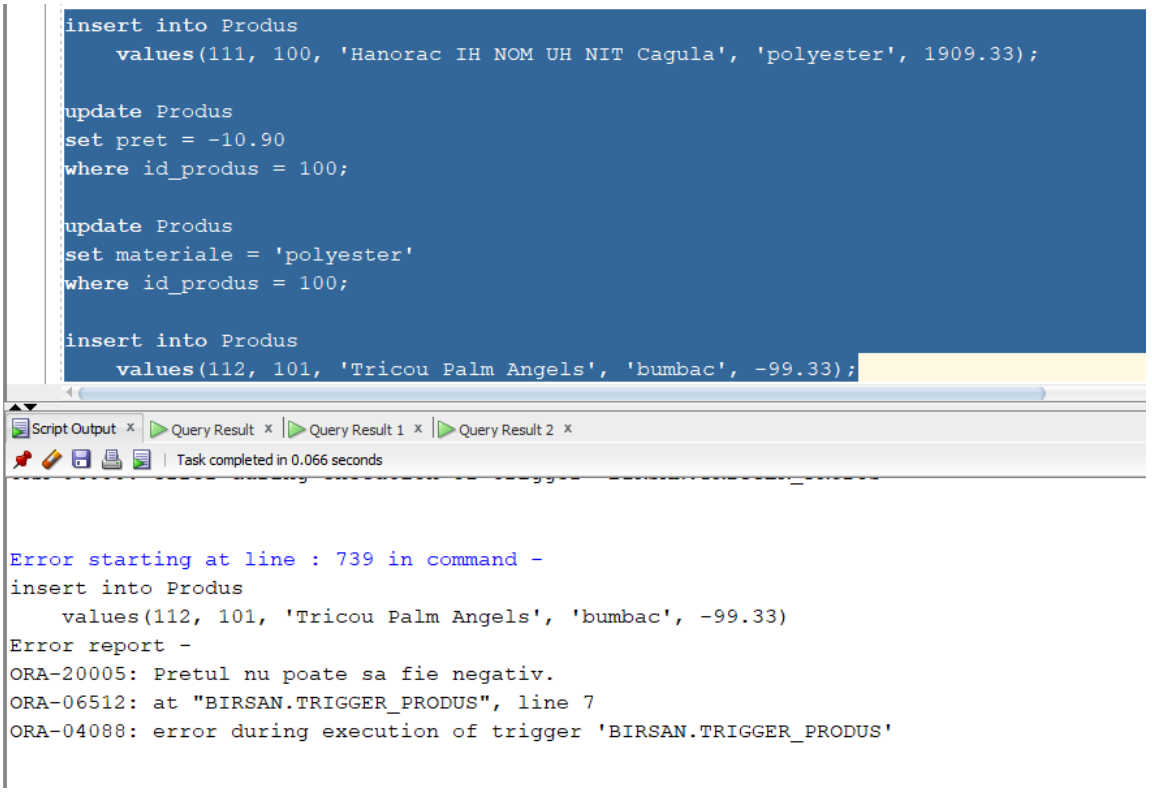
```
insert into Produs
    values(111, 100, 'Hanorac IH NOM UH NIT Cagula', 'polyester', 1909.33);

update Produs
set pret = -10.90
where id_produs = 100;

update Produs
set materiale = 'polyester'
where id_produs = 100;

insert into Produs
    values(112, 101, 'Tricou Palm Angels', 'bumbac', -99.33);
```

Script Output | Query Result | Query Result 1 | Query Result 2

Task completed in 0.066 seconds

```
Error starting at line : 735 in command -
update Produs
set materiale = 'polyester'
where id_produs = 100
Error report -
ORA-20010: Nu se pot adauga haine din polyester.
ORA-06512: at "BIRSAN.TRIGGER_PRODUS", line 22
ORA-04088: error during execution of trigger 'BIRSAN.TRIGGER_PRODUS'
```

insert into Produs
values(112, 101, 'Tricou Palm Angels', 'bumbac', -99.33);



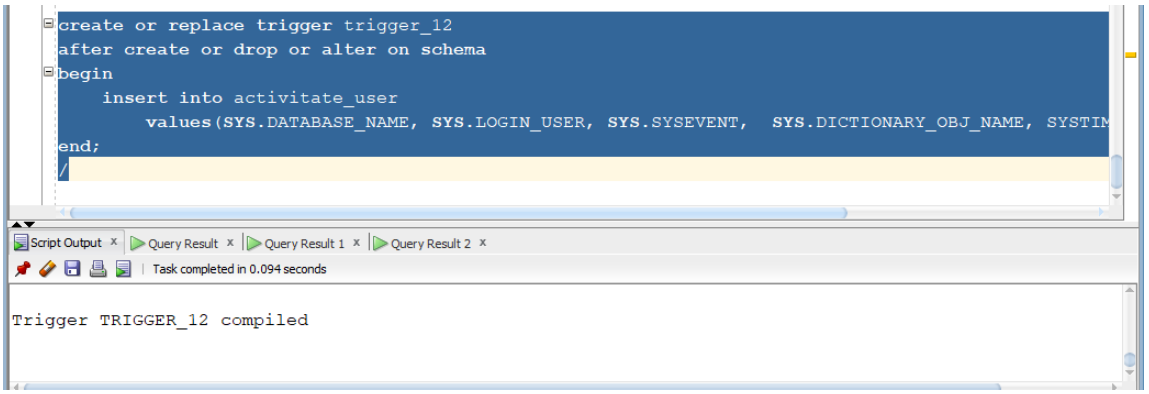
12)Trigger LDD

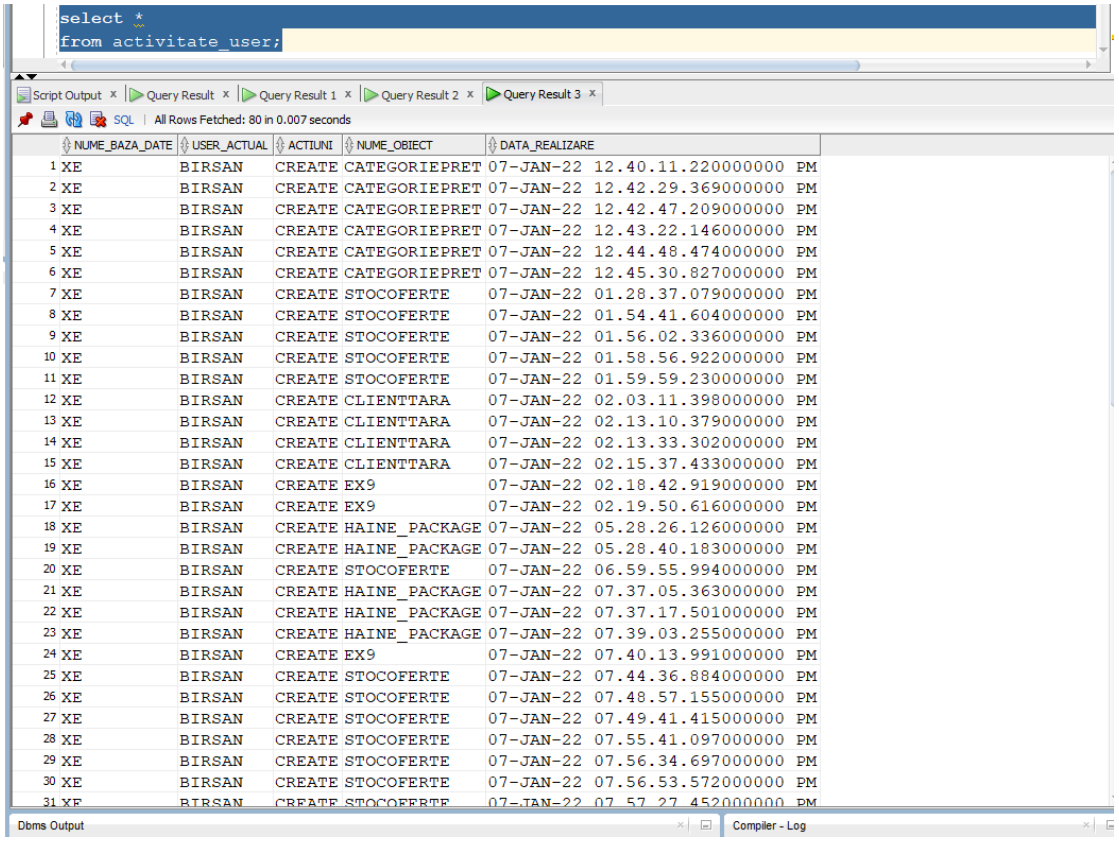
Creati tabelul: activitate_user(nume_baza_date, user_actual, actiuni, nume_obiect, data_realizare).

Definti un declansator care sa introduca date in tabelul activitate_user dupa ce utilizatorul a folosit o comanda LDD.

```
create table activitate_user
    (
    nume_baza_date VARCHAR2(50),
    user_actual VARCHAR2(30),
    actiuni VARCHAR2(20),
    nume_obiect VARCHAR2(30),
    data_realizare TIMESTAMP(3)
    );
```

```
create or replace trigger trigger_12
after create or drop or alter on schema
begin
    insert into activitate_user
       values(SYS.DATABASE_NAME, SYS.LOGIN_USER, SYS.SYSEVENT,
SYS.DICTIONARY_OBJ_NAME, SYSTIMESTAMP(3));
end;
/

select *
from activitate_user;
```





```
select *
from activitate_user;
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

SQL | All Rows Fetched: 80 in 0.007 seconds

	NUME_BAZA_DATE	USER_ACTUAL	ACTIUNI	NUME_OBIECT	DATA_REALIZARE
1	XE	BIRSAN	CREATE	CATEGORIEPRET	07-JAN-22 12.40.11.220000000 PM
2	XE	BIRSAN	CREATE	CATEGORIEPRET	07-JAN-22 12.42.29.369000000 PM
3	XE	BIRSAN	CREATE	CATEGORIEPRET	07-JAN-22 12.42.47.209000000 PM
4	XE	BIRSAN	CREATE	CATEGORIEPRET	07-JAN-22 12.43.22.146000000 PM
5	XE	BIRSAN	CREATE	CATEGORIEPRET	07-JAN-22 12.44.48.474000000 PM
6	XE	BIRSAN	CREATE	CATEGORIEPRET	07-JAN-22 12.45.30.827000000 PM
7	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 01.28.37.079000000 PM
8	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 01.54.41.604000000 PM
9	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 01.56.02.336000000 PM
10	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 01.58.56.922000000 PM
11	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 01.59.59.230000000 PM
12	XE	BIRSAN	CREATE	CLIENTTARA	07-JAN-22 02.03.11.398000000 PM
13	XE	BIRSAN	CREATE	CLIENTTARA	07-JAN-22 02.13.10.379000000 PM
14	XE	BIRSAN	CREATE	CLIENTTARA	07-JAN-22 02.13.33.302000000 PM
15	XE	BIRSAN	CREATE	CLIENTTARA	07-JAN-22 02.15.37.433000000 PM
16	XE	BIRSAN	CREATE	EX9	07-JAN-22 02.18.42.919000000 PM
17	XE	BIRSAN	CREATE	EX9	07-JAN-22 02.19.50.616000000 PM
18	XE	BIRSAN	CREATE	HAINE_PACKAGE	07-JAN-22 05.28.26.126000000 PM
19	XE	BIRSAN	CREATE	HAINE_PACKAGE	07-JAN-22 05.28.40.183000000 PM
20	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 06.59.55.994000000 PM
21	XE	BIRSAN	CREATE	HAINE_PACKAGE	07-JAN-22 07.37.05.363000000 PM
22	XE	BIRSAN	CREATE	HAINE_PACKAGE	07-JAN-22 07.37.17.501000000 PM
23	XE	BIRSAN	CREATE	HAINE_PACKAGE	07-JAN-22 07.39.03.255000000 PM
24	XE	BIRSAN	CREATE	EX9	07-JAN-22 07.40.13.991000000 PM
25	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.44.36.884000000 PM
26	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.48.57.155000000 PM
27	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.49.41.415000000 PM
28	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.55.41.097000000 PM
29	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.56.34.697000000 PM
30	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.56.53.572000000 PM
31	XE	BIRSAN	CREATE	STOCOFERTE	07-JAN-22 07.57.27.452000000 PM

Dbms Output | Compiler - Log

13)Pachet care sa contina toate obiectele definite in cadrul proiectului

```
-- definim specificatia pachetului

create or replace package haine_package
as

    --ex 6
    procedure CategoriePret (v_categorie Categorie.nume %type);

    --ex7
    procedure StocOferte (v_distrib Distribuitor.nume %type);

    --ex8
    function ClientTara (v_tara Adresa.tara %type)
    return varchar2;

    --ex9
    procedure ex9(v_nume Clienti.nume %type);
end haine_package;
/
```

```
--definim corpul pachetului
create or replace package body haine_package
as
--ex 6
   procedure CategoriePret (v_categorie Categorie.nume %type)
   as
      type t_nota is table of Recenzie.nota%type; --tablou imbricat
      v_nota t_nota := t_nota();
      type tablou_indexat is table of Produs %rowtype index by binary_integer;
--tablou indexat
      v_produs tablou_indexat;
      v_id_categorie Categorie.id_categorie %type;
      e_no_haine     exception;
      --e_no_nota     exception;
   begin
      DBMS_OUTPUT.PUT_LINE('--------Categoria: ' || v_categorie || '--------');
      select id_categorie
      into v_id_categorie
      from Categorie
      where lower(nume) = lower(v_categorie);

      select *
      bulk collect into v_produs
      from Produs
      where id_categorie = v_id_categorie;



      if v_produs.count != 0 then
         for i in v_produs.first..v_produs.last loop
                  DBMS_OUTPUT.PUT_LINE(v_produs(i).id_produs || ' ' ||
v_produs(i).nume || ' ' || v_produs(i).pret);

                  select nota
                  bulk collect into v_nota
                  from Recenzie
                  where id_produs = v_produs(i).id_produs;

                  if v_nota.count != 0 then
                     for j in v_nota.first..v_nota.last loop
                        DBMS_OUTPUT.PUT_LINE('A primit urmatoarele note din
recenzii: '  || v_nota(j));
                     end loop;
                  else
```

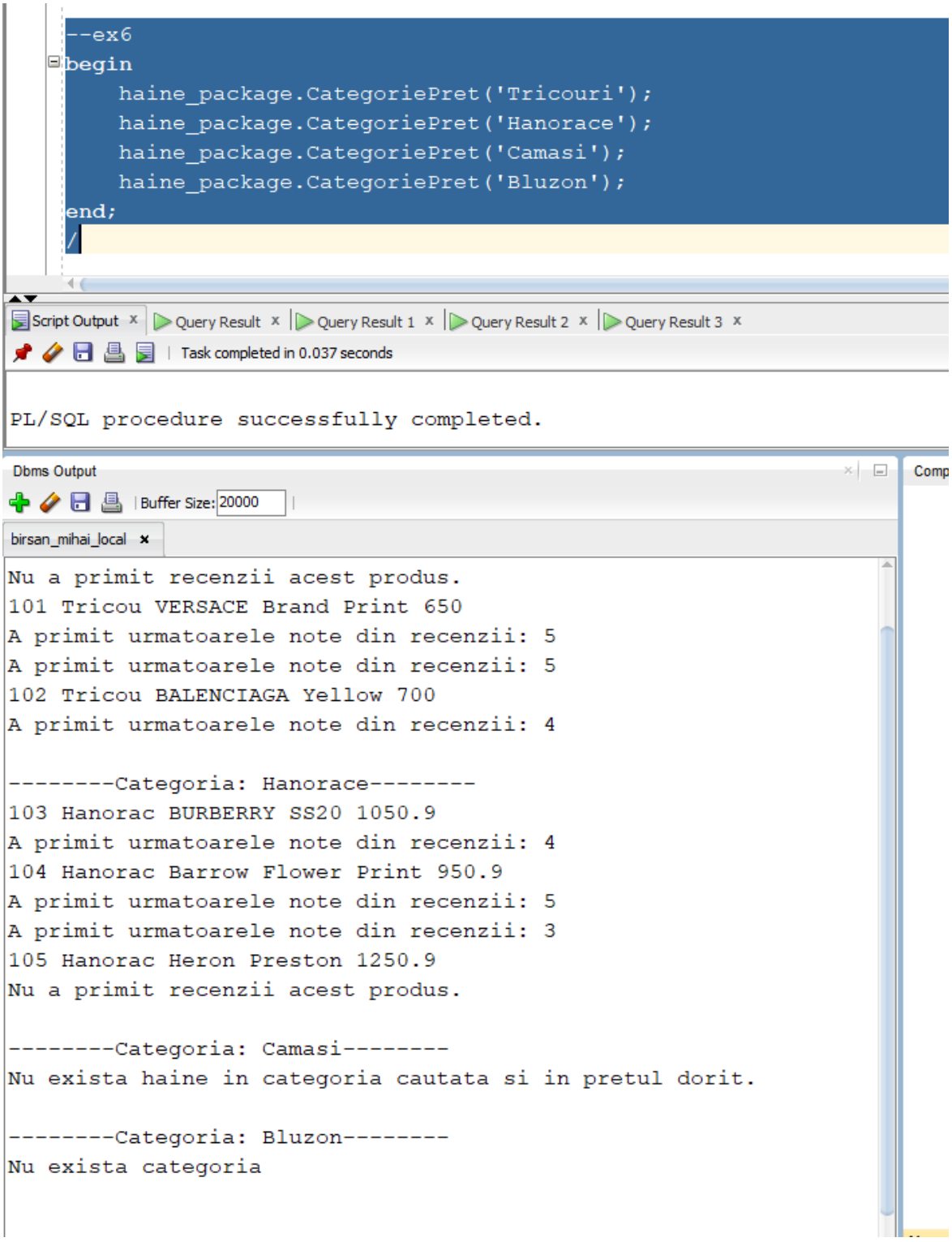
```
                    DBMS_OUTPUT.PUT_LINE('Nu a primit recenzii acest produs.');
                end if;
            end loop;
        else
            raise e_no_haine;
        end if;
        DBMS_OUTPUT.NEW_LINE;

    exception
        when e_no_haine then
            DBMS_OUTPUT.PUT_LINE('Nu exista haine in categoria cautata si in pretul
dorit.');
            DBMS_OUTPUT.NEW_LINE;
        when no_data_found then
            DBMS_OUTPUT.PUT_LINE('Nu exista categoria');
            DBMS_OUTPUT.NEW_LINE;
        when others then
            DBMS_OUTPUT.PUT_LINE('Alta eroare.');
            DBMS_OUTPUT.NEW_LINE;
    end CategoriePret;



    --ex7
    procedure StocOferte ( v_distrib Distribuitor.nume %type)
    as
        v_nr number := 0;
        v_nr1 number := 0;
        v_id_oferta number;
        v_id_distribuitor1 number;
        v_stoc number;
        v_nume Distribuitor.nume %type;
        v_id_distribuitor Distribuitor.id_distribuitor %type;
        cursor c is
            select  id_oferta, o.id_distribuitor, stoc
            from Oferta o
            join Distribuitor d
            on o.id_distribuitor = d.id_distribuitor;
        e_no_stoc     exception;

    begin

        select id_distribuitor
        into v_id_distribuitor
```

```
        from Distribuitor
        where lower(nume) = lower(v_distrib);

        open c;
        loop

            fetch c into v_id_oferta, v_id_distribuitor1, v_stoc;
            exit when c%notfound;

            if v_id_distribuitor1 = v_id_distribuitor then
                v_nr := v_nr + 1;
                v_nr1 := v_nr1 + v_stoc;

            end if;
        end loop;
        if v_nr > 0 then
            if v_nr1 > 0 then
                DBMS_OUTPUT.PUT_LINE('Distribuitorul ' || v_distrib || ' are in stoc ' ||
v_nr || ' produse.');
                DBMS_OUTPUT.NEW_LINE;
            else
                raise e_no_stoc;
            end if;
        end if;
    exception
        when e_no_stoc then
            DBMS_OUTPUT.PUT_LINE('Nu exista oferte de la acest distribuitor.');
            DBMS_OUTPUT.NEW_LINE;
        when no_data_found then
            DBMS_OUTPUT.PUT_LINE('Nu exista distribuitorul.');
            DBMS_OUTPUT.NEW_LINE;
        when others then
            DBMS_OUTPUT.PUT_LINE('Alta eroare.');
            DBMS_OUTPUT.NEW_LINE;
    end StocOferte;


    --ex8
    function ClientTara(v_tara Adresa.tara %type)
    return varchar2
    as

        type t_id_client is table of Clienti.id_client %type; --tabel imbricat
        v_id_client   t_id_client := t_id_client();
```

```
    v_nr_comenzi NUMBER;
    V_numar NUMBER :=0;
    e_no_clienti     exception;

begin

    select id_client
    bulk collect into v_id_client
    from Clienti
    where id_adresa in (select id_adresa
                        from Adresa
                        where lower(tara) = lower(v_tara)
                        );

    if v_id_client.count = 0 then
        raise e_no_clienti;
    end if;
    for i in v_id_client.first..v_id_client.last loop

        select count(distinct id_client)
        into v_nr_comenzi
        from Comanda
        where id_client = v_id_client(i);

        v_numar := v_numar + v_nr_comenzi;

    end loop;

    return 'Din tara ' || v_tara || ' au fost ' || to_char(v_numar) || ' clienti.';

exception
    when e_no_clienti then
        return 'Din tara ' || v_tara  || ' nu au existat momentan clienti.';
        --return 0;
    when others then
        return 'Alta eroare.';
        --return -20005;

end ClientTara;

--ex9
procedure ex9(v_nume Clienti.nume %type)
is
    v_client Clienti%rowtype;
```

```
    type t_produs is table of Produs%rowtype;
    v_produs t_produs;

    type t_categorie is table of Categorie.nume %type;
    v_categorie t_categorie;

    v_tara Adresa.tara %type;

  begin

    select *
    into v_client
    from Clienti
    where lower(nume) = lower(v_nume);

    select tara
    into v_tara
    from Adresa
    where id_adresa = v_client.id_adresa;

    DBMS_OUTPUT.PUT_LINE('Clientul ' || v_client.nume || ' ' || v_client.prenume ||
' din ' || v_tara || ' a cumparat:');

    select distinct Categorie.nume
    bulk collect into v_categorie
    from Categorie
    join Produs using (id_categorie)
    join Recenzie using (id_produs)
    join Clienti using (id_client)
    where id_client = v_client.id_client
    order by 1;


    if v_categorie.count = 0 then
       DBMS_OUTPUT.PUT_LINE('Acest client nu a cumparat nimic.');
    else
       for i in v_categorie.first..v_categorie.last loop
          DBMS_OUTPUT.PUT_LINE(v_categorie(i));

       end loop;
       DBMS_OUTPUT.NEW_LINE();
    end if;
```

```
    exception

        when no_data_found then
            DBMS_OUTPUT.PUT_LINE('Nu exista niciun client cu acest nume.');
            DBMS_OUTPUT.NEW_LINE();
        when too_many_rows then
            DBMS_OUTPUT.PUT_LINE('Mai multi clieti cu acelasi nume.');
            DBMS_OUTPUT.NEW_LINE();
        when others then
            DBMS_OUTPUT.PUT_LINE('Alta eroare.');
            DBMS_OUTPUT.NEW_LINE();
    end ex9;

end haine_package;
/

--verificarea pachetului

--ex6
begin
    haine_package.CategoriePret('Tricouri');
    haine_package.CategoriePret('Hanorace');
    haine_package.CategoriePret('Camasi');
    haine_package.CategoriePret('Bluzon');
end;
/
```




```
--ex7
begin
   haine_package.StocOferte('Capodopera12');
   haine_package.StocOferte('Farfetch');
   haine_package.StocOferte('Ankl');
   haine_package.StocOferte('Puma');
```

end;
/

```
--ex7
begin
    haine_package.StocOferte('Capodopera12');
    haine_package.StocOferte('Farfetch');
    haine_package.StocOferte('Ankl');
    haine_package.StocOferte('Puma');
end;
/
```

Script Output | Query Result | Query Result 1 | Query Result 2 | Query Result 3

Task completed in 0.029 seconds

```
PL/SQL procedure successfully completed.
```

Dbms Output | Buffer Size: 20000

birsan_mihai_local

```
Distribuitorul Capodopera12 are in stoc 1 produse.

Distribuitorul Farfetch are in stoc 2 produse.

Nu exista oferte de la acest distribuitor.

Nu exista distribuitorul.
```

--ex8

select haine_package.ClientTara('Romania') Clienti_din_Romania from dual;

```
select haine_package.ClientTara('Romania') Clienti_din_Romania from dual;
select haine_package.ClientTara('Germania') Clienti_din_Germania from dual;
select haine_package.ClientTara('China') Clienti_din_China from dual;
/

--ex9
```

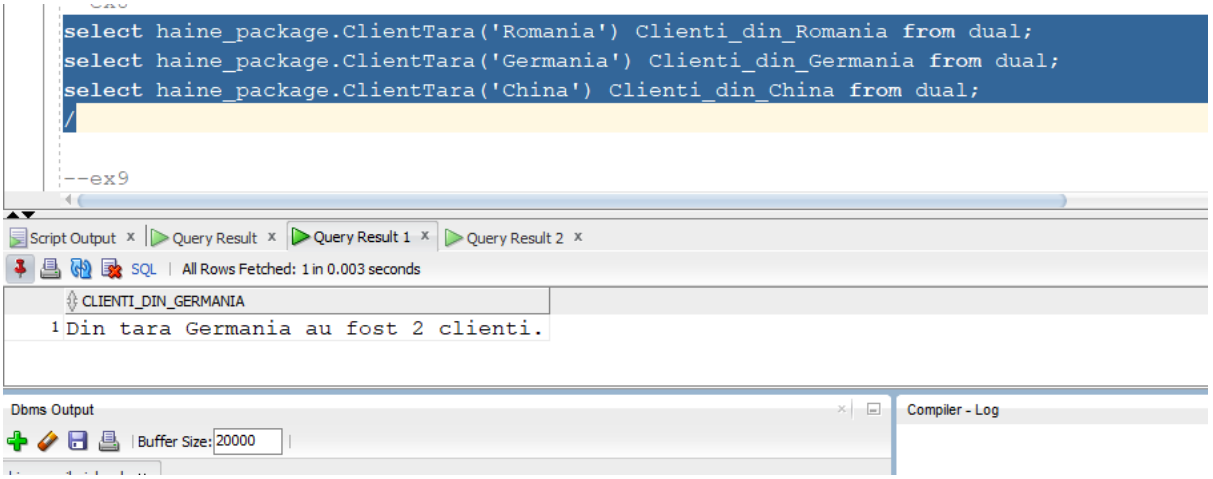
Script Output | Query Result | Query Result 1 | Query Result 2

SQL | All Rows Fetched: 1 in 0.002 seconds

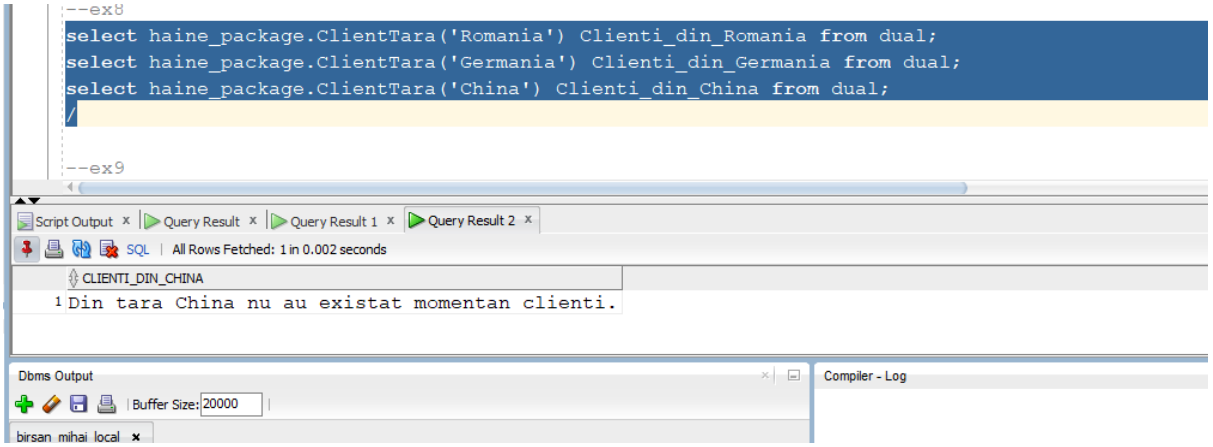
	CLIENTI_DIN_ROMANIA
1	Din tara Romania au fost 3 clienti.

Dbms Output | Buffer Size: 20000 | Compiler - Log

select haine_package.ClientTara('Germania') Clienti_din_Germania from dual;



select haine_package.ClientTara('China') Clienti_din_China from dual;
/




```
--ex9
begin
   haine_package.ex9('Popescu');
   haine_package.ex9('Popa');
   haine_package.ex9('Ionela');
   haine_package.ex9('Grigore');
   haine_package.ex9('Ionescu');
end;
/
```

```
--ex9
begin
    haine_package.ex9('Popescu');
    haine_package.ex9('Popa');
    haine_package.ex9('Ionela');
    haine_package.ex9('Grigore');
    haine_package.ex9('Ionescu');
end;
/
```

Script Output | Query Result | Query Result 1 | Query Result 2

Task completed in 0.029 seconds

```
PL/SQL procedure successfully completed.
```

Dbms Output | Compiler - Log

Buffer Size: 20000

birsan_mihai_local

```
Mai multi clieti cu acelasi nume.

Clientul Popa Lucian din Romania a cumparat:
Hanorace
Pantaloni

Nu exista niciun client cu acest nume.

Clientul Grigore Ludovic din Germania a cumparat:
Geci

Clientul Ionescu Felicia din Romania a cumparat:
Tricouri
```