[Дата]

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Проект по Бази данни

Задание № 11

# Задание

## Да се проектира и реализира база от данни за **МУЗИКАЛЕН МАГАЗИН**, която да съхранява следната информация:

1. *Стока (CD, DVD, Blue-Ray, и др.)* – вид, година, наименование, изпълнител, жанр, музикална компания, единична цена.
2. *Клиент* – име, адрес и телефон.
3. *Служител* – име, позиция, телефон.
4. *Продажби* – клиент, служител, дата на продажба, стоки, брой.

## Правила:

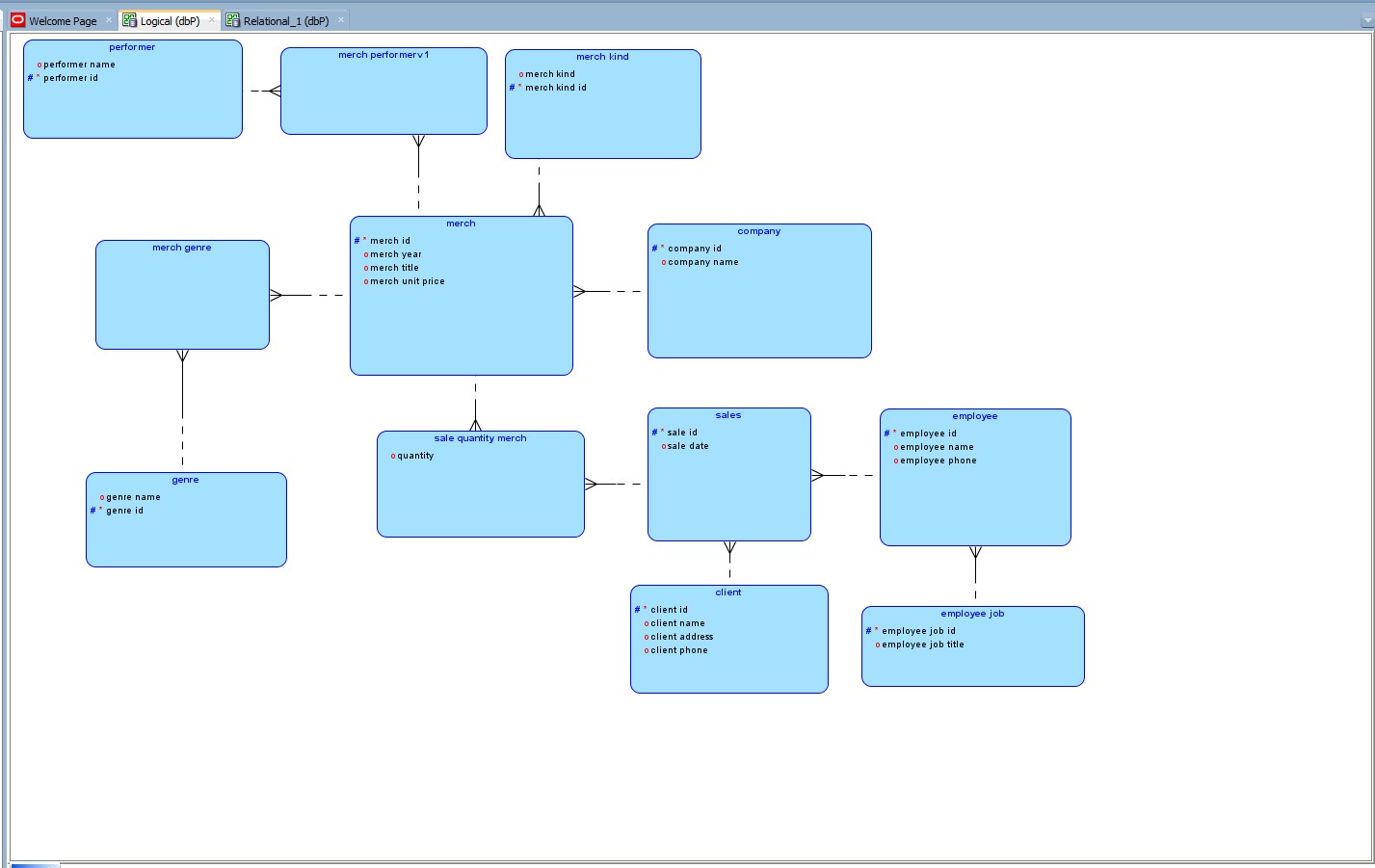
* Всеки клиент може да закупи повече от една стока.
* Всяка стока е от един: вид, жанр, изпълнител, компания.

## Базата данни трябва да е **нормализирана** и да позволява:

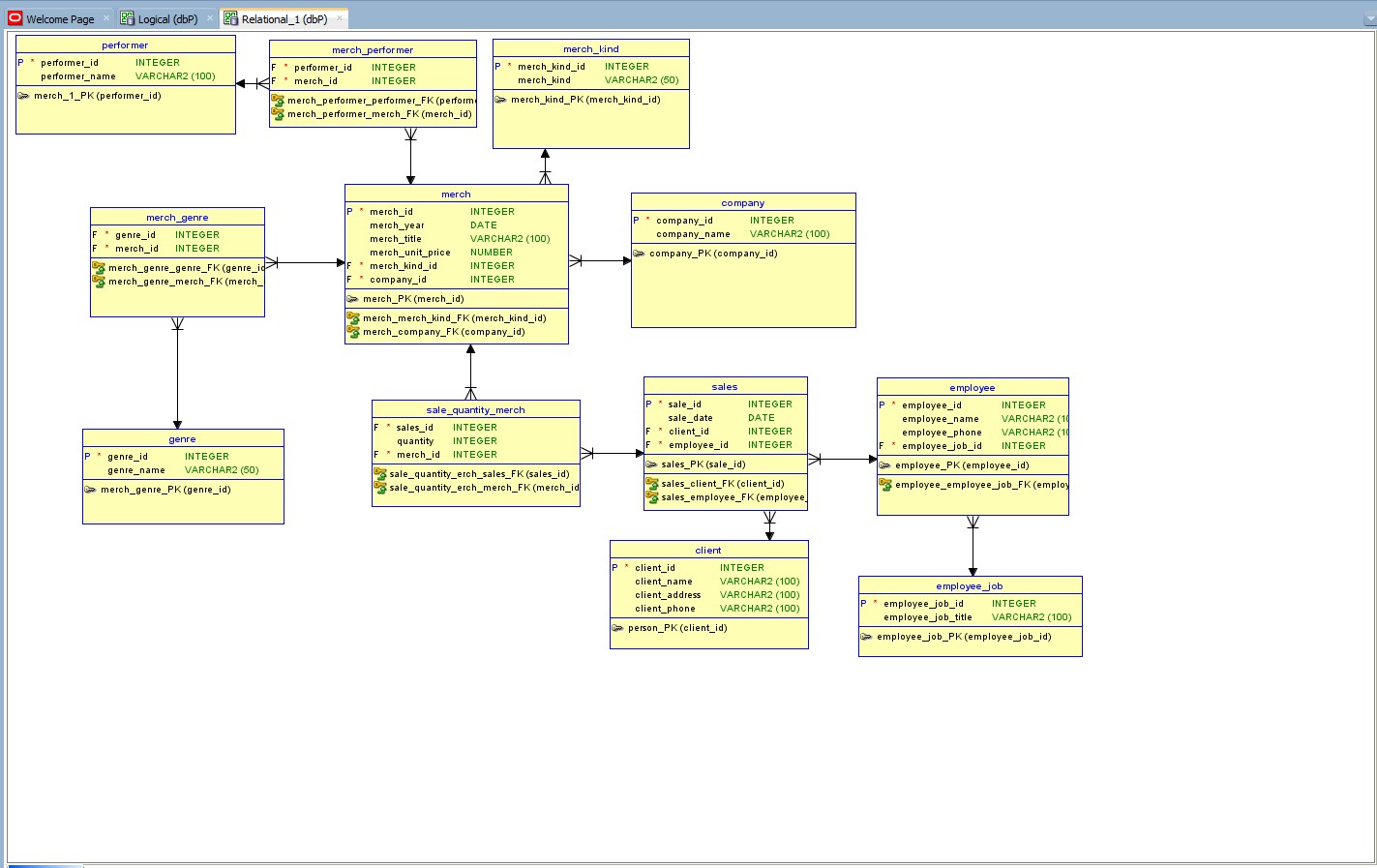
1. **Въвеждане и корекция** на данни.
2. **Търсене на CD, DVD** по: вид, изпълнител, жанр, година, музикална компания.
3. **Справки** за:
   * Продажби на служител, подредени по дата.
   * Последните 5 продажби на стоки, подредени по служител.
   * Закупени стоки от клиент, подредени по вид и дата.
   * Закупени стоки за период, подредени по клиенти и дати.

# Data modeler

## Logical model



## Relational model



# Създаване на таблици

Пълният код на заданието може да намерите на този линк: https://github.com/sonikvvv/Project-for-DB

**CREATE** **TABLE** sales (  
 sale\_id INTEGER **NOT** NULL,  
 sale\_date DATE,  
 client\_id INTEGER **NOT** NULL,  
 employee\_id INTEGER **NOT** NULL  
);

# Въвеждане на информация в таблиците

Пълният код на заданието може да намерите на този линк: https://github.com/sonikvvv/Project-for-DB

**insert** **all**   
 **into** merch\_kind (merch\_kind\_id, merch\_kind) **VALUEs**(1, 'CD')  
 **into** merch\_kind (merch\_kind\_id, merch\_kind) **VALUEs**(2, 'DVD')   
 **into** merch\_kind (merch\_kind\_id, merch\_kind) **VALUEs**(3, 'Blue-Ray')   
 **into** merch\_kind (merch\_kind\_id, merch\_kind) **VALUEs**(4, 'Plate')  
**select** 1 **from** dual;

# Търсене

## Създаване на отделна таблица

**create** **table** search\_in\_merch **as**  
**with** search\_merch **as**  
(  
 **select**  
 m.merch\_id,  
 m.merch\_title,  
 m.merch\_year,  
 m.merch\_unit\_price,  
 mk.merch\_kind,  
 g.genre\_name,  
 **LISTAGG**(p.performer\_name, ',') **within** **group** (**order** **by** p.performer\_name) **as** performers,  
 c.company\_name  
 **from** merch m  
 **join** merch\_genre mg **on** mg.merch\_id = m.merch\_id  
 **join** genre g **on** g.genre\_id = mg.genre\_id  
 **join** company c **on** m.company\_id = c.company\_id  
 **join** merch\_performer mp **on** m.merch\_id = mp.merch\_id  
 **join** performer p **on** mp.performer\_id = p.performer\_id  
 **join** merch\_kind mk **on** m.merch\_kind\_id = mk.merch\_kind\_id  
 **group** **by** m.merch\_id, m.merch\_title, m.merch\_year, m.merch\_unit\_price, mk.merch\_kind,   
 c.company\_name, g.genre\_name  
 **order** **by** m.merch\_id  
)  
**select**   
 s.merch\_id,  
 s.merch\_title,  
 s.merch\_year,  
 s.merch\_unit\_price,  
 s.merch\_kind,  
 **LISTAGG**(s.genre\_name, ',') **within** **group** (**order** **by** s.genre\_name) **as** genres,  
 s.performers,  
 s.company\_name  
**from** search\_merch s  
**group** **by** s.merch\_id, s.merch\_title, s.merch\_year, s.merch\_unit\_price, s.merch\_kind,   
s.performers, s.company\_name;s.performers, s.company\_name;

## Заявки за търсене и резултати

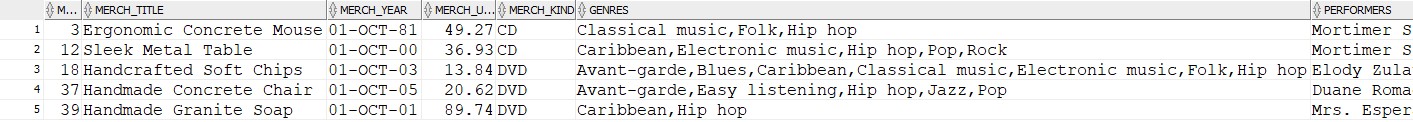
### По изпълнител – value = mc

**select** \*   
**from** search\_in\_merch  
**where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
 **and** **lower**(company\_name) **like** **lower**('%&value%');



### По жанр – value = op

**select** \*  
**from** search\_in\_merch  
**where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
 **and** **lower**(genres) **like** **lower**('%&value%');



### По година – value = 1981-10-1

**select** \*  
**from** search\_in\_merch  
**where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
 **and** merch\_year **like** **to\_date**('&value', 'YYYY-MM-DD');



### По музикална компания – value = mc

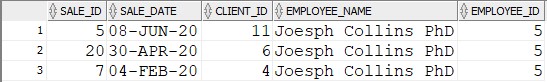
**select** \*   
**from** search\_in\_merch  
**where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
 **and** **lower**(company\_name) **like** **lower**('%&value%');



# Справки

## Продажби на служител, подредени по дата- value = 5

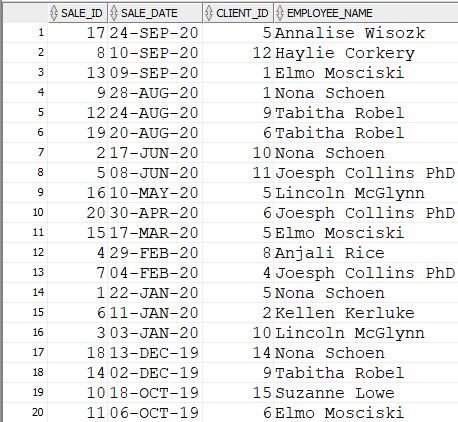
**select**  
 s.sale\_id,  
 s.sale\_date,   
 s.client\_id,  
 e.employee\_name,  
 e.employee\_id  
**from** sales s  
**join** EMPLOYEE e **on** e.employee\_id = s.employee\_id  
**where** e.employee\_id = &employee\_id  
**group** **by** e.employee\_name, s.sale\_id, s.sale\_date, s.client\_id, e.employee\_id  
**order** **by** e.employee\_name **DESC**, s.sale\_date **DESC**;



## Последните 5 продажби на стоки, подредени по служител

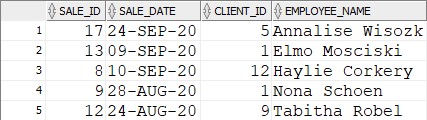
### Продажби подредени по дата.

select s.sale\_id, s.sale\_date, s.client\_id, e.employee\_name  
from sales s  
join employee e on s.employee\_id = e.employee\_id  
**order** by sale\_date DESC;



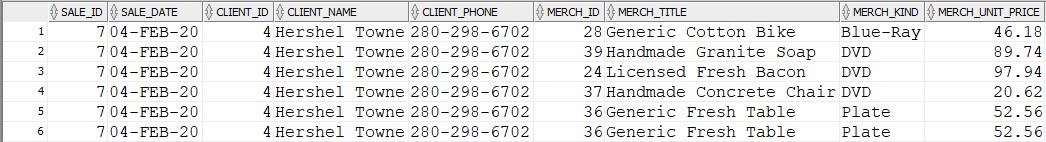
### Последните 5 продажби на стоки

**select** \*   
**from**  
(  
 **select** s.sale\_id, s.sale\_date, s.client\_id, e.employee\_name  
 **from** sales s  
 **join** employee e **on** s.employee\_id = e.employee\_id  
 **order** **by** sale\_date **DESC**  
)  
**where** ROWNUM <= 5  
**order** **by** 4 **ASC**;



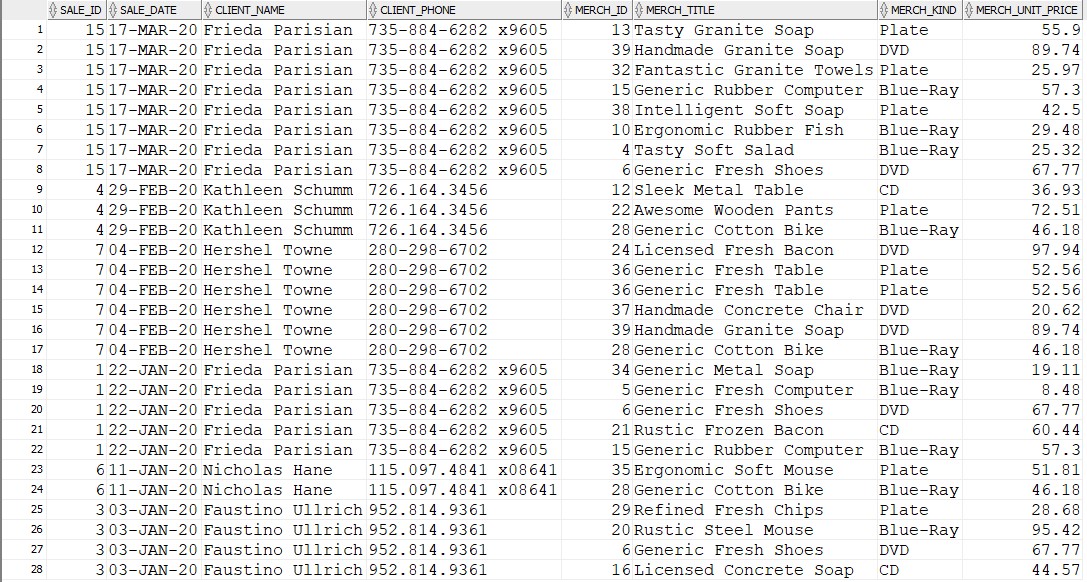
## Закупени стоки от клиент, подредени по вид и дата – value = 4

**select**  
 s.sale\_id,  
 s.sale\_date,  
 c.client\_name,  
 c.client\_phone,  
 m.merch\_id,  
 m.merch\_title,  
 mk.merch\_kind,  
 m.merch\_unit\_price  
**from** sales s  
**join** sale\_quantity\_merch sqm **on** s.sale\_id = sqm.sales\_id  
**join** **client** c **on** c.client\_id = s.client\_id  
**join** merch m **on** m.merch\_id = sqm.merch\_id  
**join** merch\_kind mk **on** mk.merch\_kind\_id = m.merch\_kind\_id  
**where** c.client\_id = &client\_id  
**order** **by** mk.merch\_kind **ASC**, s.sale\_date **DESC**;



## Закупени стоки за период, подредени по клиенти и дати 1.1.2020 -20.4.2020

**select**  
 s.sale\_id,  
 s.sale\_date,  
 c.client\_name,  
 c.client\_phone,  
 m.merch\_id,  
 m.merch\_title,  
 mk.merch\_kind,  
 m.merch\_unit\_price  
**from** sales s  
**join** sale\_quantity\_merch sqm **on** s.sale\_id = sqm.sales\_id  
**join** **client** c **on** c.client\_id = s.client\_id  
**join** merch m **on** m.merch\_id = sqm.merch\_id  
**join** merch\_kind mk **on** mk.merch\_kind\_id = m.merch\_kind\_id  
**where**   
 (s.sale\_date >= **to\_date**('&from\_date', 'DD.MM.YYYY')) **and**  
 (s.sale\_date <= **to\_date**('&to\_datee', 'DD.MM.YYYY'))  
**order** **by** s.sale\_date **DESC**, c.client\_name;



# PL/SQL

## Sequences

**create** **SEQUENCE** client\_seq  
    **start** **with** 16   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** company\_seq  
    **start** **with** 21   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** employee\_seq  
    **start** **with** 11   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
  
**create** **SEQUENCE** employee\_job\_seq  
    **start** **with** 11   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
  
**create** **SEQUENCE** genre\_seq  
    **start** **with** 15   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** merch\_seq  
    **start** **with** 40   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** merch\_genre\_seq  
    **start** **with** 102   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** merch\_kind\_seq  
    **start** **with** 5   
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** merch\_performer\_seq  
    **start** **with** 60  
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** performer\_seq  
    **start** **with** 16  
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** sale\_quantity\_merch\_seq  
    **start** **with** 99  
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;  
   
**create** **SEQUENCE** sales\_seq  
    **start** **with** 21  
    **INCREMENT** **by** 1  
NOCACHE **ORDER**;

## Triggers

**create** **TRIGGER** client\_trig  
    **before** **insert** **on** **CLIENT**  
    **for** **EACH** **ROW**  
    **WHEN** (new.client\_id **is** null)  
    **begin** :new.client\_id := vesko.CLIENT\_SEQ.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** company\_trig  
    **before** **insert** **on** company  
    **for** **EACH** **ROW**  
    **WHEN** (new.company\_id **is** null)  
    **begin** :new.company\_id := vesko.company\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** employee\_trig  
    **before** **insert** **on** employee  
    **for** **EACH** **ROW**  
    **WHEN** (new.employee\_id **is** null)  
    **begin** :new.employee\_id := vesko.employee\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** employee\_job\_trig  
    **before** **insert** **on** employee\_job  
    **for** **EACH** **ROW**  
    **WHEN** (new.employee\_job\_id **is** null)  
    **begin** :new.employee\_job\_id := vesko.employee\_job\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** genre\_trig  
    **before** **insert** **on** genre  
    **for** **EACH** **ROW**  
    **WHEN** (new.genre\_id **is** null)  
    **begin** :new.genre\_id := vesko.genre\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** merch\_trig  
    **before** **insert** **on** merch  
    **for** **EACH** **ROW**  
    **WHEN** (new.merch\_id **is** null)  
    **begin** :new.merch\_id := vesko.merch\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** merch\_genre\_trig  
    **before** **insert** **on** merch\_genre  
    **for** **EACH** **ROW**  
    **WHEN** (new.merch\_genre\_id **is** null)  
    **begin** :new.merch\_genre\_id := vesko.merch\_genre\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** merch\_kind\_trig  
    **before** **insert** **on** merch\_kind  
    **for** **EACH** **ROW**  
    **WHEN** (new.merch\_kind\_id **is** null)  
    **begin** :new.merch\_kind\_id := vesko.merch\_kind\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** merch\_performer\_trig  
    **before** **insert** **on** merch\_performer  
    **for** **EACH** **ROW**  
    **WHEN** (new.merch\_performer\_id **is** null)  
    **begin** :new.merch\_performer := vesko.merch\_performer\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** performer\_trig  
    **before** **insert** **on** performer  
    **for** **EACH** **ROW**  
    **WHEN** (new.performer\_id **is** null)  
    **begin** :new.performer\_id := vesko.performer\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** sale\_quantity\_merch\_trig  
    **before** **insert** **on** sale\_quantity\_merch  
    **for** **EACH** **ROW**  
    **WHEN** (new.sale\_quantity\_merch\_id **is** null)  
    **begin** :new.sale\_quantity\_merch\_id := vesko.sale\_quantity\_merch\_seq.NEXTVAL;  
**end**;  
  
**create** **TRIGGER** sales\_trig  
    **before** **insert** **on** sales  
    **for** **EACH** **ROW**  
    **WHEN** (new.sales\_id **is** null)  
    **begin** :new.sales\_id := vesko.sales\_seq.NEXTVAL;  
**end**;

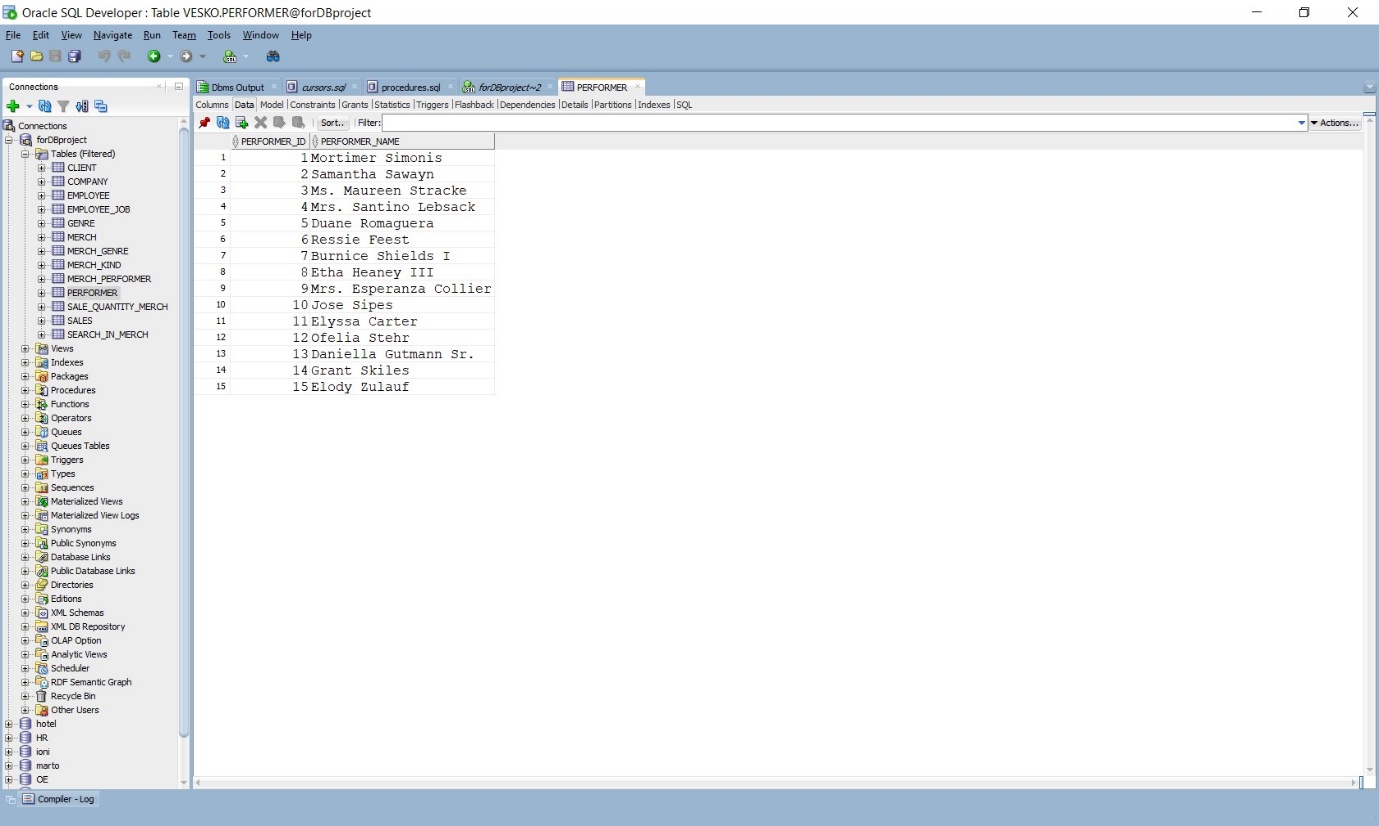
## Procedures

### Insert

**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_client  
    (  
        v\_client\_name client.client\_name%TYPE,  
        v\_client\_adress client.client\_address%TYPE,  
        v\_client\_phone client.client\_phone%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** client (client\_name, client\_address, client\_phone)  
        **Values** (v\_client\_name,v\_client\_adress, v\_client\_phone);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_company  
    (  
        v\_company\_name company.company\_name%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** company(company\_name)  
        **Values** (v\_company\_name);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_employee\_job  
    (  
        v\_employee\_job\_title employee\_job.employee\_job\_title%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** employee\_job(employee\_job\_title)  
        **Values** (v\_employee\_job\_title);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_employee  
    (  
        v\_employee\_name employee.employee\_name%TYPE,  
        v\_employee\_job\_id employee.employee\_job\_id%TYPE,  
        v\_employee\_phone employee.employee\_phone%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** employee (employee\_name, employee\_phone, employee\_job\_id)  
        **Values** (v\_employee\_name, v\_employee\_job\_id, v\_employee\_phone);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_genre  
    (  
        v\_genre\_name genre.genre\_name%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** genre(genre\_name)  
        **Values** (v\_genre\_name);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_merch\_kind  
    (  
        v\_merch\_kind merch\_kind.merch\_kind%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** merch\_kind(merch\_kind)  
        **Values** (v\_merch\_kind);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_performer  
    (  
        v\_performer\_name performer.performer\_name%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** performer(performer\_name)  
        **Values** (v\_performer\_name);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_sales  
    (  
        v\_sale\_date sales.sale\_date%TYPE,  
        v\_client\_id sales.client\_id%TYPE,  
        v\_employee\_id sales.employee\_id%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** sales(sale\_date, client\_id, employee\_id)  
        **Values** (v\_sale\_date, v\_client\_id, v\_employee\_id);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_sqm  
    (  
        v\_sales\_id sale\_quantity\_merch.sales\_id%TYPE,  
        v\_quantity sale\_quantity\_merch.quantity%TYPE,  
        v\_merch\_id sale\_quantity\_merch.merch\_id%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** sale\_quantity\_merch(sales\_id, quantity, merch\_id)  
        **Values** (v\_sales\_id, v\_quantity, v\_merch\_id);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_merch\_perf  
    (  
        v\_performer\_id merch\_performer.performer\_id%TYPE,  
        v\_merch\_id merch\_performer.merch\_id%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** merch\_performer(performer\_id, merch\_id)  
        **Values** (v\_performer\_id, v\_merch\_id);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_merch\_genre  
    (  
        v\_genre\_id merch\_genre.genre\_id%TYPE,  
        v\_merch\_id merch\_genre.merch\_id%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** merch\_genre(genre\_id, merch\_id)  
        **Values** (v\_genre\_id, v\_merch\_id);  
**END**;  
  
**CREATE** **OR REPLACE** **PROCEDURE** insert\_into\_merch  
    (  
        v\_merch\_year merch.merch\_year%TYPE,  
        v\_merch\_title merch.merch\_title%TYPE,  
        v\_merch\_unit\_price merch.merch\_unit\_price%TYPE,  
        v\_merch\_kind\_id merch.merch\_kind\_id%TYPE,  
        v\_company\_id merch.company\_id%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **INSERT** **INTO** merch(merch\_year, merch\_title, merch\_unit\_price, merch\_kind\_id, company\_id)  
        **Values** (v\_merch\_year, v\_merch\_title, v\_merch\_unit\_price, v\_merch\_kind\_id, v\_company\_id);  
**END**;

#### Резултати

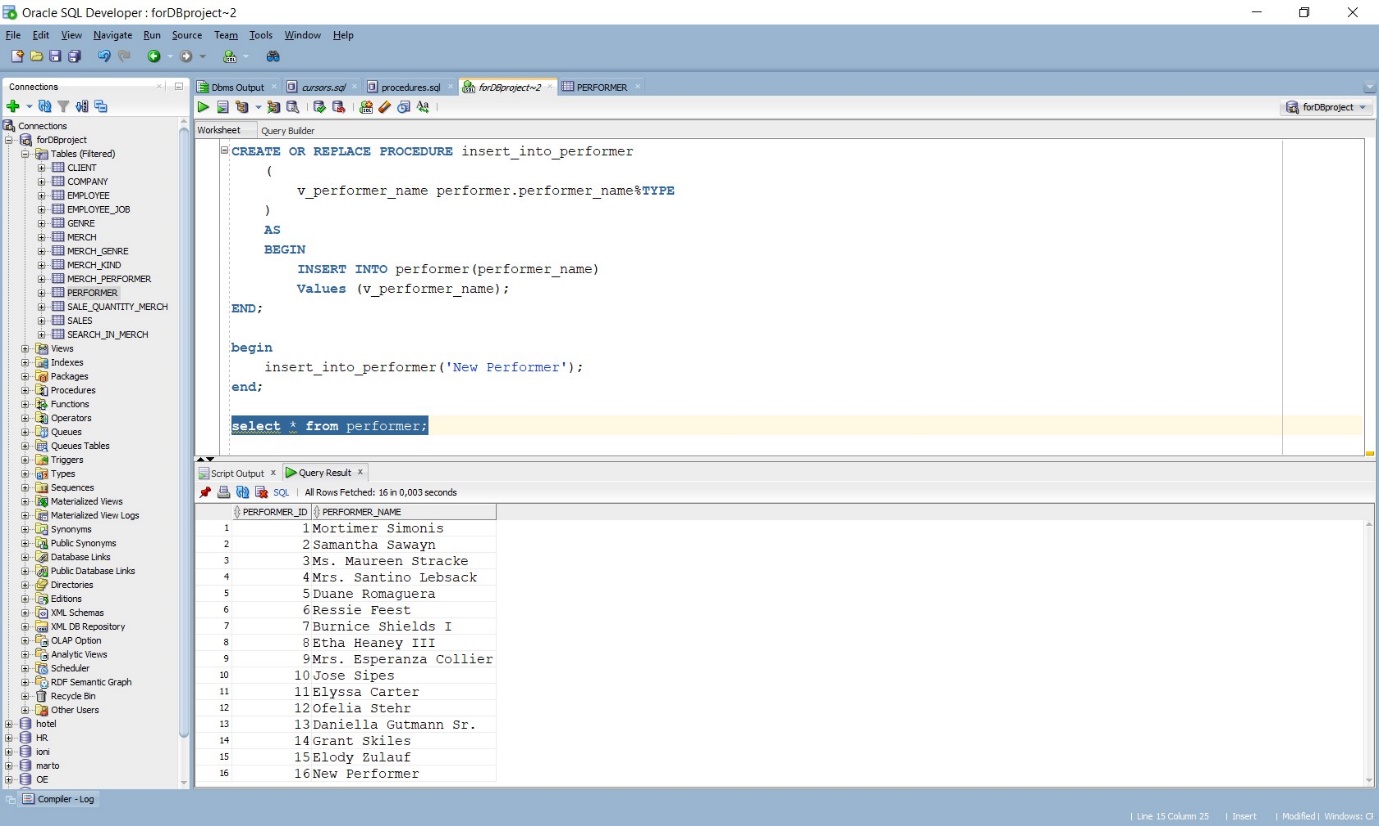
Преди insert procedure:



Заявка:

**begin**  
 insert\_into\_performer('New Performer');  
**end**;

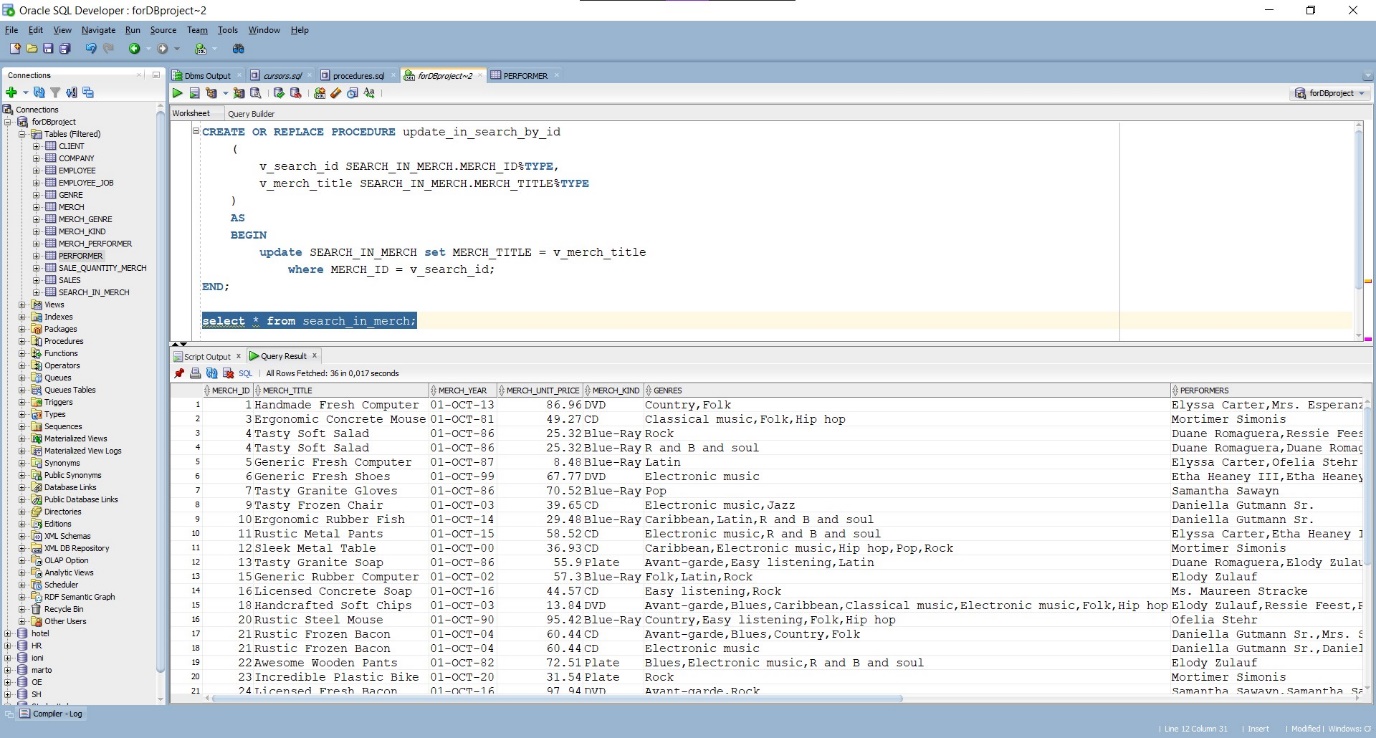
След insert procedure:

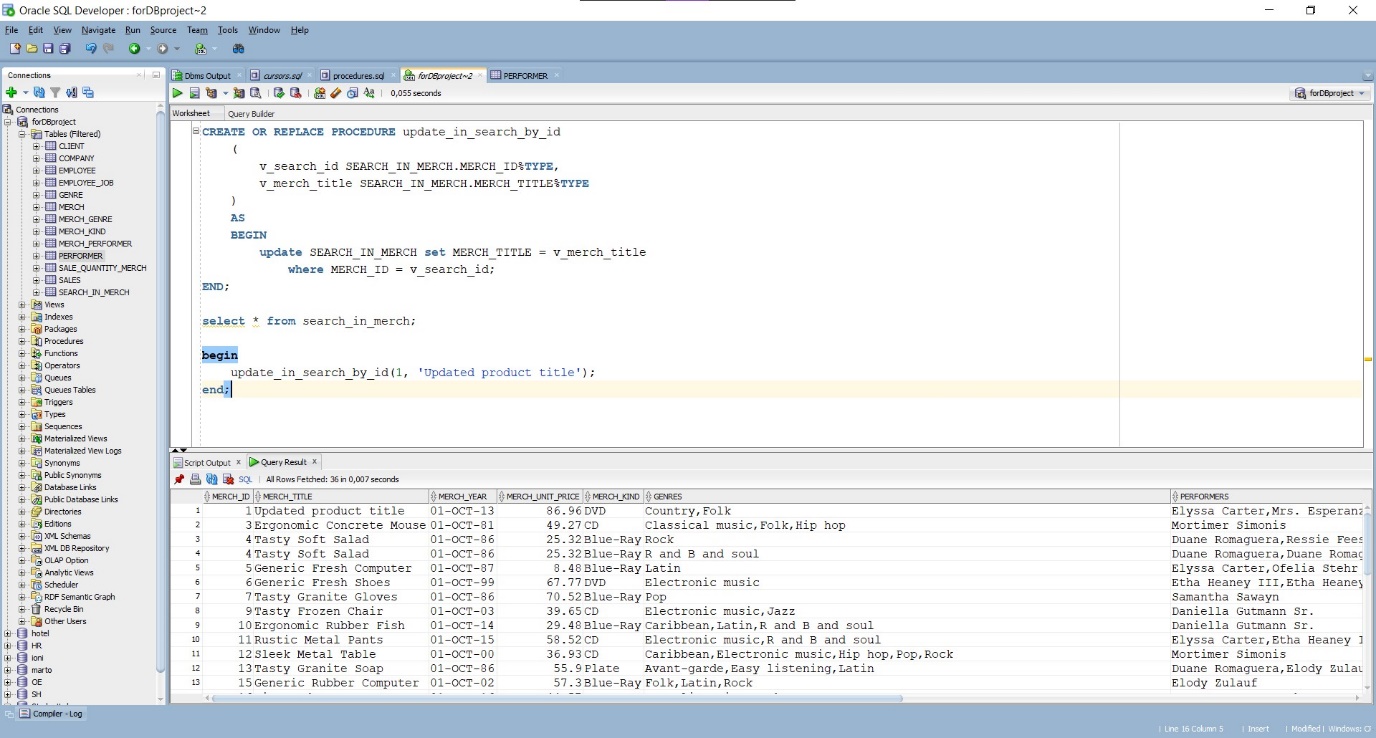


### Update

**CREATE** **OR REPLACE** **PROCEDURE** update\_in\_search\_by\_id  
    (  
        v\_search\_id SEARCH\_IN\_MERCH.MERCH\_ID%TYPE,  
        v\_merch\_title SEARCH\_IN\_MERCH.MERCH\_TITLE%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **update** SEARCH\_IN\_MERCH **set** MERCH\_TITLE = v\_merch\_title  
            **where** MERCH\_ID = v\_search\_id;  
**END**;

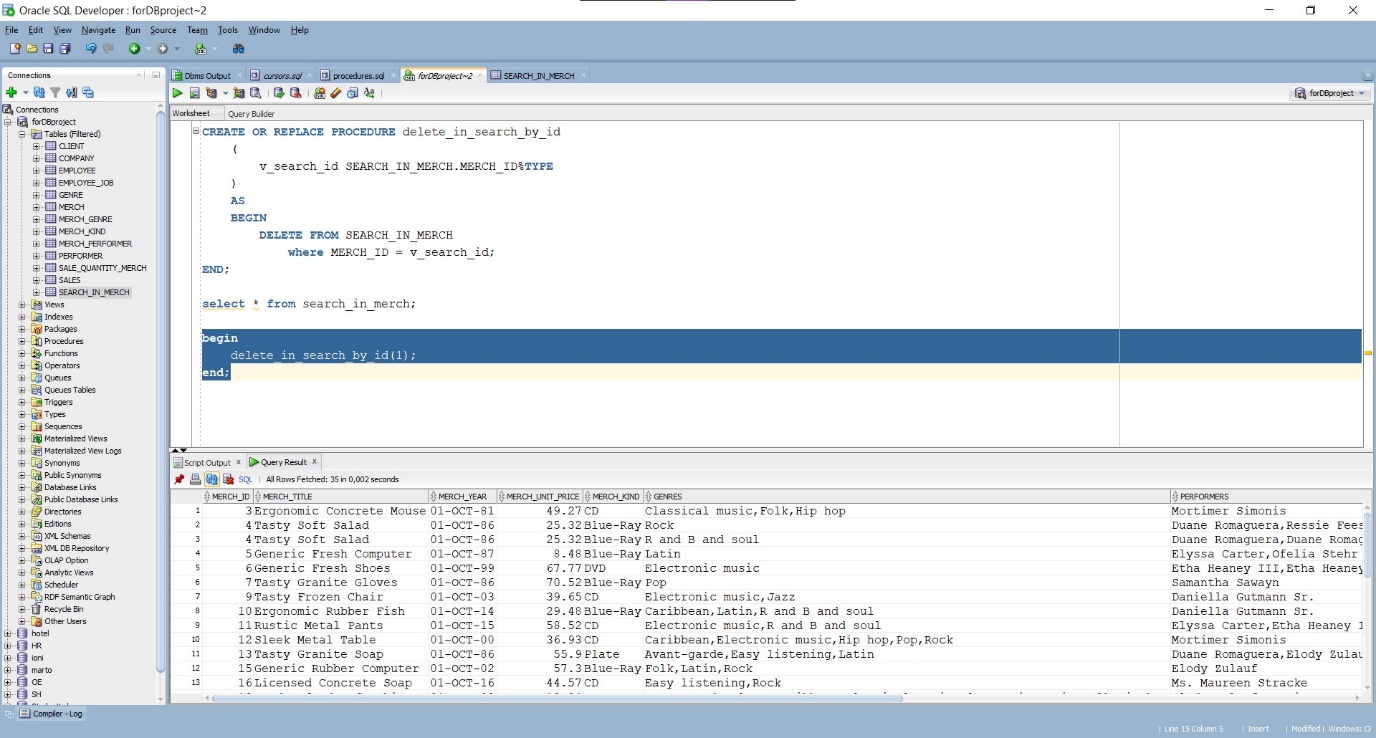
Преди Update procedure:



След Update procedure: 

### Delete

**CREATE** **OR REPLACE** **PROCEDURE** delete\_in\_search\_by\_id  
    (  
        v\_search\_id SEARCH\_IN\_MERCH.MERCH\_ID%TYPE  
    )  
    **AS**  
    **BEGIN**  
        **DELETE** **FROM** SEARCH\_IN\_MERCH  
            **where** MERCH\_ID = v\_search\_id;  
**END**;



# Cursors

## Продажби на служител, подредени по дата.

**create** **or replace** **PROCEDURE** SalesByEmpDate(v\_empl\_id Number)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        s.sale\_id,  
        s.sale\_date,   
        s.client\_id,  
        e.employee\_name,  
        e.employee\_id  
    **from** sales s  
    **join** EMPLOYEE e **on** e.employee\_id = s.employee\_id  
    **where** e.employee\_id = v\_empl\_id  
    **group** **by** e.employee\_name, s.sale\_id, s.sale\_date, s.client\_id, e.employee\_id  
    **order** **by** e.employee\_name **DESC**, s.sale\_date **DESC**;  
      
    v\_sale\_id       sales.SALE\_ID%type;  
    v\_sale\_date     sales.SALE\_DATE%type;  
    v\_client\_id     CLIENT.CLIENT\_ID%TYPE;  
    v\_employee\_name EMPLOYEE.EMPLOYEE\_NAME%TYPE;  
    v\_employee\_id   EMPLOYEE.EMPLOYEE\_ID%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**   
            v\_sale\_id,  
            v\_sale\_date,  
            v\_client\_id,  
            v\_employee\_name,  
            v\_employee\_id;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Sale ID => ' || v\_sale\_id || ' sale date => ' || v\_sale\_date ||  
                    ' client id => ' || v\_client\_id || ' employee name => ' || v\_employee\_name ||  
                    ' employee id => ' || v\_employee\_id  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
    **end** SalesByEmpDate  
;  
  
--exec SalesByEmpDate(3);

## Последните 5 продажби на стоки, подредени по служител.

**create** **or replace** **PROCEDURE** last5sales(v\_empl\_id Number)  
**is**   
 **cursor** cursor\_select **is**  
 **select** \*   
 **from**  
 (  
 **select** s.sale\_id, s.sale\_date, s.client\_id, e.employee\_name  
 **from** sales s  
 **join** employee e **on** s.employee\_id = e.employee\_id  
 **order** **by** sale\_date **DESC**  
 )  
 **where** ROWNUM <= 5  
 **order** **by** 4 **ASC**;  
   
 v\_sale\_id sales.SALE\_ID%type;  
 v\_sale\_date sales.SALE\_DATE%type;  
 v\_client\_id CLIENT.CLIENT\_ID%TYPE;  
 v\_employee\_name EMPLOYEE.EMPLOYEE\_NAME%TYPE;  
   
 **begin**  
 **open** cursor\_select;  
 **loop** **fetch** cursor\_select **into**   
 v\_sale\_id,  
 v\_sale\_date,  
 v\_client\_id,  
 v\_employee\_name;  
 **exit** **when** cursor\_select%notfound;  
 DBMS\_OUTPUT.PUT\_LINE  
 (  
 'Sale ID => ' || v\_sale\_id || ' sale date => ' || v\_sale\_date ||  
 ' client id => ' || v\_client\_id || ' employee name => ' || v\_employee\_name  
 );  
 **end** **loop**;  
 **close** cursor\_select;  
 **end** last5sales  
;  
  
--exec last5sales(1);

## Закупени стоки от клиент, подредени по вид и дата.

**create** **or replace** **PROCEDURE** SalesByClientID(v\_cl\_id Number)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        s.sale\_id,  
        s.sale\_date,  
        c.client\_id,  
        c.client\_name,  
        c.client\_phone,  
        m.merch\_id,  
        m.merch\_title,  
        mk.merch\_kind,  
        m.merch\_unit\_price  
    **from** sales s  
    **join** sale\_quantity\_merch sqm **on** s.sale\_id = sqm.sales\_id  
    **join** client c **on** c.client\_id = s.client\_id  
    **join** merch m **on** m.merch\_id = sqm.merch\_id  
    **join** merch\_kind mk **on** mk.merch\_kind\_id = m.merch\_kind\_id  
    **where** c.client\_id = v\_cl\_id  
    **order** **by** mk.merch\_kind **ASC**, s.sale\_date **DESC**;  
      
    v\_sale\_id SALES.SALE\_ID%TYPE;  
    v\_sale\_date  SALES.SALE\_DATE%TYPE;  
    v\_client\_id CLIENT.CLIENT\_ID%TYPE;  
    v\_client\_name CLIENT.CLIENT\_NAME%TYPE;  
    v\_client\_phone CLIENT.CLIENT\_PHONE%TYPE;  
    v\_merch\_id MERCH.MERCH\_ID%TYPE;  
    v\_merch\_title MERCH.MERCH\_TITLE %TYPE;  
    v\_merch\_kind MERCH\_KIND.MERCH\_KIND%TYPE;  
    v\_merch\_unit\_price MERCH.MERCH\_UNIT\_PRICE%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_sale\_id,  
            v\_sale\_date,  
            v\_client\_id,  
            v\_client\_name,  
            v\_client\_phone,  
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_kind,  
            v\_merch\_unit\_price;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Sale ID => ' || v\_sale\_id || ' sale date => ' || v\_sale\_date ||  
                    ' client id => ' || v\_client\_id || ' client name => ' || v\_client\_name ||  
                    ' client phone N => ' || v\_client\_phone || ' merch id => ' || v\_merch\_id ||  
                    ' merch title => ' || v\_merch\_title || ' merch kind => ' || v\_merch\_kind ||  
                    ' merch unit price => ' || v\_merch\_unit\_price  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** SalesByClientID;  
  
--exec SalesByClientID(2);

## Закупени стоки за период, подредени по клиенти и дати.

**create** **or replace** **PROCEDURE** SalesByDate(v\_from\_date varchar2, v\_to\_date varchar2)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        s.sale\_id,  
        s.sale\_date,  
        c.client\_name,  
        c.client\_phone,  
        m.merch\_id,  
        m.merch\_title,  
        mk.merch\_kind,  
        m.merch\_unit\_price  
    **from** sales s  
    **join** sale\_quantity\_merch sqm **on** s.sale\_id = sqm.sales\_id  
    **join** client c **on** c.client\_id = s.client\_id  
    **join** merch m **on** m.merch\_id = sqm.merch\_id  
    **join** merch\_kind mk **on** mk.merch\_kind\_id = m.merch\_kind\_id  
    **where**   
        (s.sale\_date >= to\_date(v\_from\_date, 'DD.MM.YYYY')) **and**  
        (s.sale\_date <= to\_date(v\_to\_date, 'DD.MM.YYYY'))  
    **order** **by** s.sale\_date **DESC**, c.client\_name;  
      
    v\_sale\_id SALES.SALE\_ID%TYPE;  
    v\_sale\_date  SALES.SALE\_DATE%TYPE;  
    v\_client\_name CLIENT.CLIENT\_NAME%TYPE;  
    v\_client\_phone CLIENT.CLIENT\_PHONE%TYPE;  
    v\_merch\_id MERCH.MERCH\_ID%TYPE;  
    v\_merch\_title MERCH.MERCH\_TITLE %TYPE;  
    v\_merch\_kind MERCH\_KIND.MERCH\_KIND%TYPE;  
    v\_merch\_unit\_price MERCH.MERCH\_UNIT\_PRICE%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_sale\_id,  
            v\_sale\_date,  
            v\_client\_name,  
            v\_client\_phone,  
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_kind,  
            v\_merch\_unit\_price;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Sale ID => ' || v\_sale\_id || ' sale date => ' || v\_sale\_date ||  
                    ' client name => ' || v\_client\_name ||  
                    ' client phone N => ' || v\_client\_phone || ' merch id => ' || v\_merch\_id ||  
                    ' merch title => ' || v\_merch\_title || ' merch kind => ' || v\_merch\_kind ||  
                    ' merch unit price => ' || v\_merch\_unit\_price  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** SalesByDate;  
  
--exec SalesByDate('1.1.2020', '20.4.2020');

## Търсене на CD, DVD:

### По музикална компания

**create** **or replace** **PROCEDURE** search\_by\_company(valuess varchar2)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        merch\_id,  
        merch\_title,  
        merch\_year,  
        merch\_unit\_price,  
        merch\_kind,  
        genres,  
        performers,  
        company\_name  
    **from** search\_in\_merch  
    **where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
        **and** lower(company\_name) **like** lower('%'||valuess||'%');  
      
    v\_merch\_id          search\_in\_merch.MERCH\_ID%TYPE;  
    v\_merch\_title       search\_in\_merch.MERCH\_TITLE%TYPE;  
    v\_merch\_year        search\_in\_merch.MERCH\_YEAR%TYPE;  
    v\_merch\_unit\_price  search\_in\_merch.MERCH\_UNIT\_PRICE%TYPE;  
    v\_merch\_kind        search\_in\_merch.MERCH\_KIND%TYPE;  
    v\_genres            search\_in\_merch.GENRES%TYPE;  
    v\_performers        search\_in\_merch.PERFORMERS%TYPE;  
    v\_company\_name      search\_in\_merch.COMPANY\_NAME%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_year,  
            v\_merch\_unit\_price,  
            v\_merch\_kind,  
            v\_genres,  
            v\_performers,  
            v\_company\_name;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Merch ID => ' || v\_merch\_id || ' title => ' || v\_merch\_title ||  
                    ' year => ' || v\_merch\_year || ' unit price => ' || v\_merch\_unit\_price ||  
                    ' kind => ' || v\_merch\_kind || ' genres => ' || v\_genres ||  
                    ' performers => ' || v\_performers || ' company => ' || v\_company\_name  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** search\_by\_company;  
  
--exec search\_by\_company('mc');

### По име на продукт

**create** **or replace** **PROCEDURE** search\_by\_m\_title(valuess varchar2)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        merch\_id,  
        merch\_title,  
        merch\_year,  
        merch\_unit\_price,  
        merch\_kind,  
        genres,  
        performers,  
        company\_name  
    **from** search\_in\_merch  
    **where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
        **and** lower(merch\_title) **like** lower('%'||valuess||'%');  
      
    v\_merch\_id          search\_in\_merch.MERCH\_ID%TYPE;  
    v\_merch\_title       search\_in\_merch.MERCH\_TITLE%TYPE;  
    v\_merch\_year        search\_in\_merch.MERCH\_YEAR%TYPE;  
    v\_merch\_unit\_price  search\_in\_merch.MERCH\_UNIT\_PRICE%TYPE;  
    v\_merch\_kind        search\_in\_merch.MERCH\_KIND%TYPE;  
    v\_genres            search\_in\_merch.GENRES%TYPE;  
    v\_performers        search\_in\_merch.PERFORMERS%TYPE;  
    v\_company\_name      search\_in\_merch.COMPANY\_NAME%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_year,  
            v\_merch\_unit\_price,  
            v\_merch\_kind,  
            v\_genres,  
            v\_performers,  
            v\_company\_name;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Merch ID => ' || v\_merch\_id || ' title => ' || v\_merch\_title ||  
                    ' year => ' || v\_merch\_year || ' unit price => ' || v\_merch\_unit\_price ||  
                    ' kind => ' || v\_merch\_kind || ' genres => ' || v\_genres ||  
                    ' performers => ' || v\_performers || ' company => ' || v\_company\_name  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** search\_by\_m\_title;  
  
--exec search\_by\_m\_title('resh');

### По жанр

**create** **or replace** **PROCEDURE** search\_by\_genre(valuess varchar2)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        merch\_id,  
        merch\_title,  
        merch\_year,  
        merch\_unit\_price,  
        merch\_kind,  
        genres,  
        performers,  
        company\_name  
    **from** search\_in\_merch  
    **where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
        **and** lower(genres) **like** lower('%'||valuess||'%');  
      
    v\_merch\_id          search\_in\_merch.MERCH\_ID%TYPE;  
    v\_merch\_title       search\_in\_merch.MERCH\_TITLE%TYPE;  
    v\_merch\_year        search\_in\_merch.MERCH\_YEAR%TYPE;  
    v\_merch\_unit\_price  search\_in\_merch.MERCH\_UNIT\_PRICE%TYPE;  
    v\_merch\_kind        search\_in\_merch.MERCH\_KIND%TYPE;  
    v\_genres            search\_in\_merch.GENRES%TYPE;  
    v\_performers        search\_in\_merch.PERFORMERS%TYPE;  
    v\_company\_name      search\_in\_merch.COMPANY\_NAME%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_year,  
            v\_merch\_unit\_price,  
            v\_merch\_kind,  
            v\_genres,  
            v\_performers,  
            v\_company\_name;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Merch ID => ' || v\_merch\_id || ' title => ' || v\_merch\_title ||  
                    ' year => ' || v\_merch\_year || ' unit price => ' || v\_merch\_unit\_price ||  
                    ' kind => ' || v\_merch\_kind || ' genres => ' || v\_genres ||  
                    ' performers => ' || v\_performers || ' company => ' || v\_company\_name  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** search\_by\_genre;  
  
--exec search\_by\_genre('op');

### По изпълнител

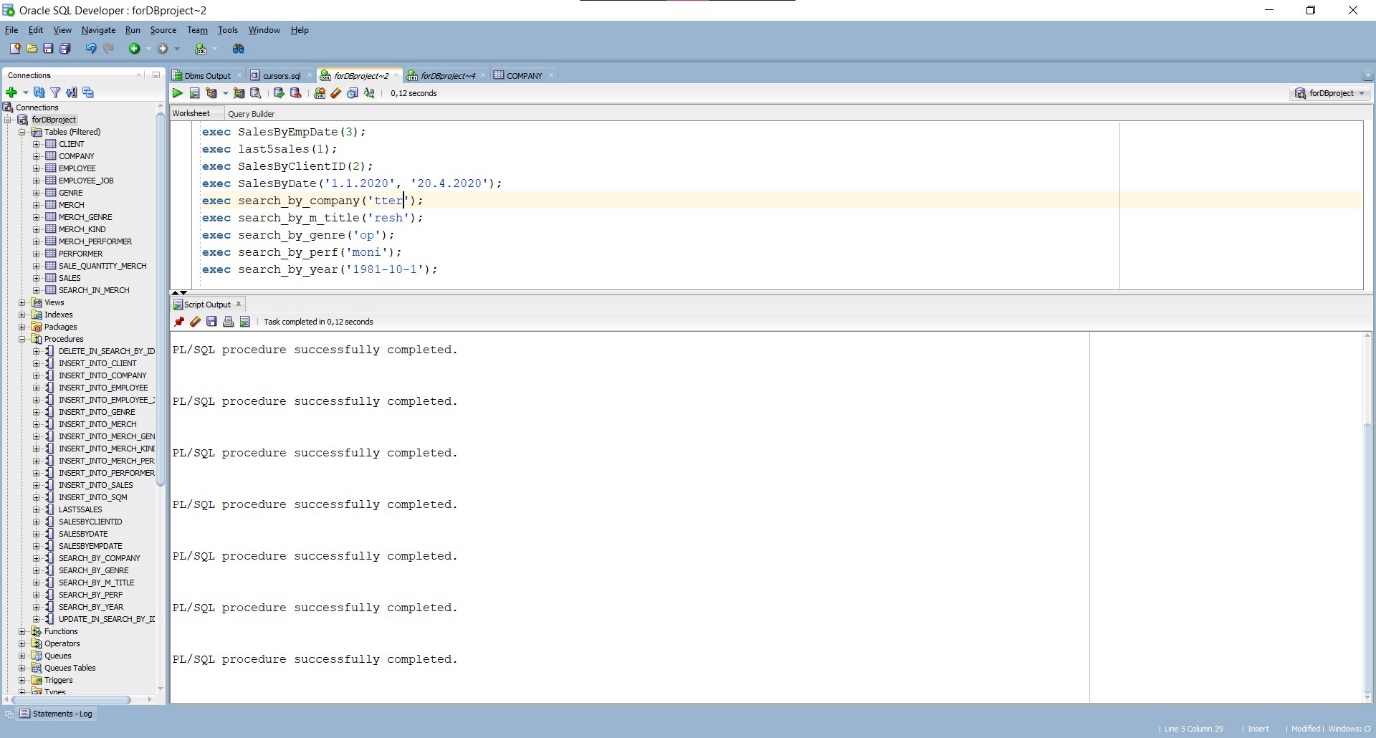
**create** **or replace** **PROCEDURE** search\_by\_perf(valuess varchar2)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        merch\_id,  
        merch\_title,  
        merch\_year,  
        merch\_unit\_price,  
        merch\_kind,  
        genres,  
        performers,  
        company\_name  
    **from** search\_in\_merch  
    **where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
        **and** lower(performers) **like** lower('%'||valuess||'%');  
      
    v\_merch\_id          search\_in\_merch.MERCH\_ID%TYPE;  
    v\_merch\_title       search\_in\_merch.MERCH\_TITLE%TYPE;  
    v\_merch\_year        search\_in\_merch.MERCH\_YEAR%TYPE;  
    v\_merch\_unit\_price  search\_in\_merch.MERCH\_UNIT\_PRICE%TYPE;  
    v\_merch\_kind        search\_in\_merch.MERCH\_KIND%TYPE;  
    v\_genres            search\_in\_merch.GENRES%TYPE;  
    v\_performers        search\_in\_merch.PERFORMERS%TYPE;  
    v\_company\_name      search\_in\_merch.COMPANY\_NAME%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_year,  
            v\_merch\_unit\_price,  
            v\_merch\_kind,  
            v\_genres,  
            v\_performers,  
            v\_company\_name;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Merch ID => ' || v\_merch\_id || ' title => ' || v\_merch\_title ||  
                    ' year => ' || v\_merch\_year || ' unit price => ' || v\_merch\_unit\_price ||  
                    ' kind => ' || v\_merch\_kind || ' genres => ' || v\_genres ||  
                    ' performers => ' || v\_performers || ' company => ' || v\_company\_name  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** search\_by\_perf;  
  
--exec search\_by\_perf('moni');

### По година

**create** **or replace** **PROCEDURE** search\_by\_year(valuess varchar2)  
**is**   
    **cursor** cursor\_select **is**  
    **select**  
        merch\_id,  
        merch\_title,  
        merch\_year,  
        merch\_unit\_price,  
        merch\_kind,  
        genres,  
        performers,  
        company\_name  
    **from** search\_in\_merch  
    **where** (merch\_kind = 'CD' **or** merch\_kind = 'DVD')  
        **and** merch\_year **like** to\_date(valuess, 'YYYY-MM-DD');  
      
    v\_merch\_id          search\_in\_merch.MERCH\_ID%TYPE;  
    v\_merch\_title       search\_in\_merch.MERCH\_TITLE%TYPE;  
    v\_merch\_year        search\_in\_merch.MERCH\_YEAR%TYPE;  
    v\_merch\_unit\_price  search\_in\_merch.MERCH\_UNIT\_PRICE%TYPE;  
    v\_merch\_kind        search\_in\_merch.MERCH\_KIND%TYPE;  
    v\_genres            search\_in\_merch.GENRES%TYPE;  
    v\_performers        search\_in\_merch.PERFORMERS%TYPE;  
    v\_company\_name      search\_in\_merch.COMPANY\_NAME%TYPE;  
      
    **begin**  
        **open** cursor\_select;  
        **loop** **fetch** cursor\_select **into**           
            v\_merch\_id,  
            v\_merch\_title,  
            v\_merch\_year,  
            v\_merch\_unit\_price,  
            v\_merch\_kind,  
            v\_genres,  
            v\_performers,  
            v\_company\_name;  
        **exit** **when** cursor\_select%notfound;  
            DBMS\_OUTPUT.PUT\_LINE  
                (  
                    'Merch ID => ' || v\_merch\_id || ' title => ' || v\_merch\_title ||  
                    ' year => ' || v\_merch\_year || ' unit price => ' || v\_merch\_unit\_price ||  
                    ' kind => ' || v\_merch\_kind || ' genres => ' || v\_genres ||  
                    ' performers => ' || v\_performers || ' company => ' || v\_company\_name  
                );  
        **end** **loop**;  
        **close** cursor\_select;  
**end** search\_by\_year;  
  
--exec search\_by\_year('1981-10-1');

### Изпълнение на процедурите и резултат:

**exec** SalesByEmpDate(3);  
**exec** last5sales(1);  
**exec** SalesByClientID(2);  
**exec** SalesByDate('1.1.2020', '20.4.2020');  
**exec** search\_by\_company('tter');  
**exec** search\_by\_m\_title('resh');  
**exec** search\_by\_genre('op');  
**exec** search\_by\_perf('moni');  
**exec** search\_by\_year('1981-10-1');



Резултат: