**Курсова работа №1**

**по Проектиране и администриране на бази данни**

**Изготвил:** Петър Димитров Попов

**Класно отделение:** 12282

**Факултетен номер:** 111-7419

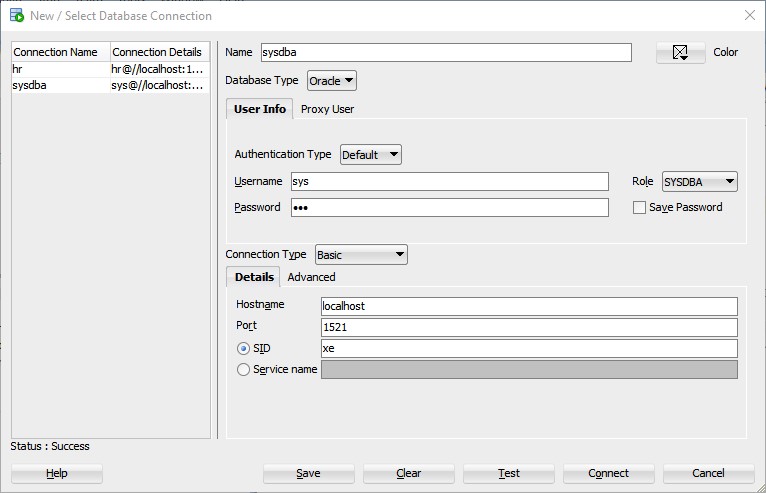
**Задание:**

Да се проектира и реализира БД за склад за ел. уреди, която да поддържа данни за:

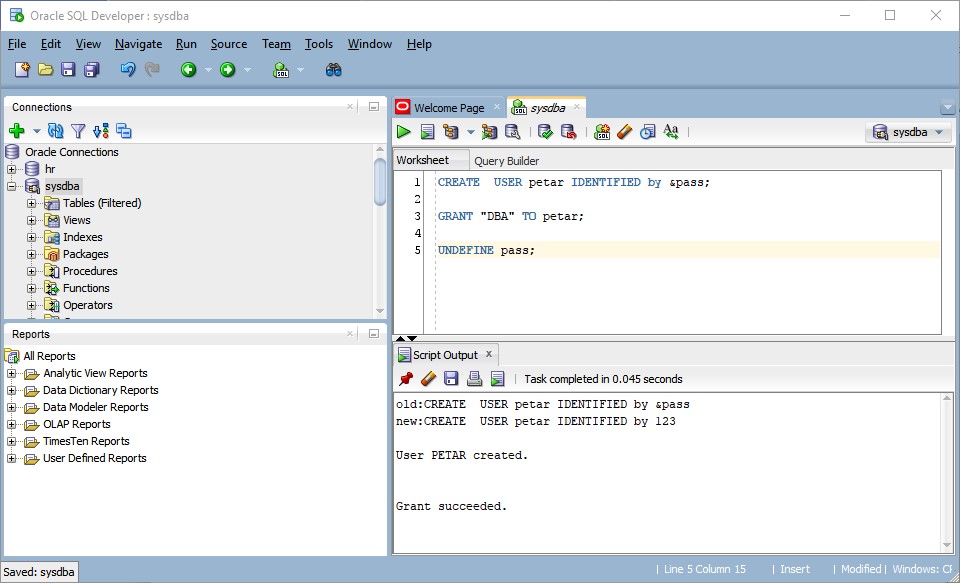
* Категории стоки – код на категория, описание.
* Уреди – код на уред от категория, описание, ед. цена.
* Клиенти – номер, име, фамилия на клиент, ЕГН.
* Поръчки – номер на поръчка за клиент, дата.
* Детайли на поръчката – включва няколко уреда за поръчка, брой.

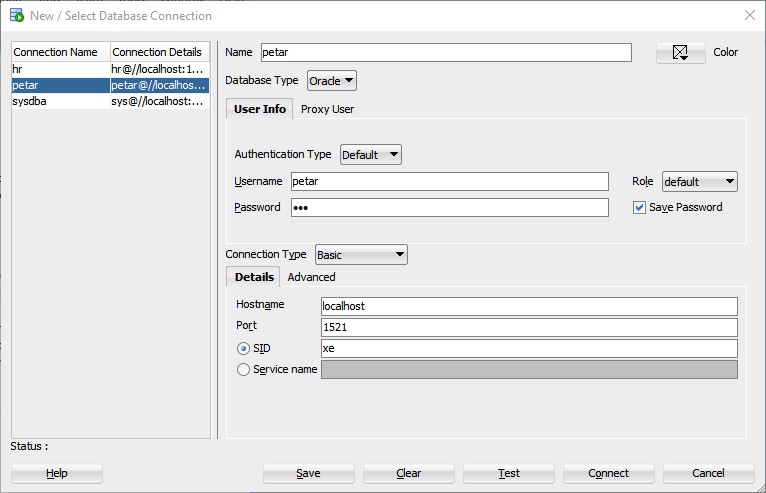
Да се изведе справка за номер на клиент, име, фамилия на клиент, ЕГН, номер на поръчка за клиента, дата на поръчката, код на уред, описание, ед. цена; брой, сумата за уредите, код на категория, описание. Подредба по номер на клиент.

1. **Конекция като sysdba и създаване на нов потребител - petar**

****

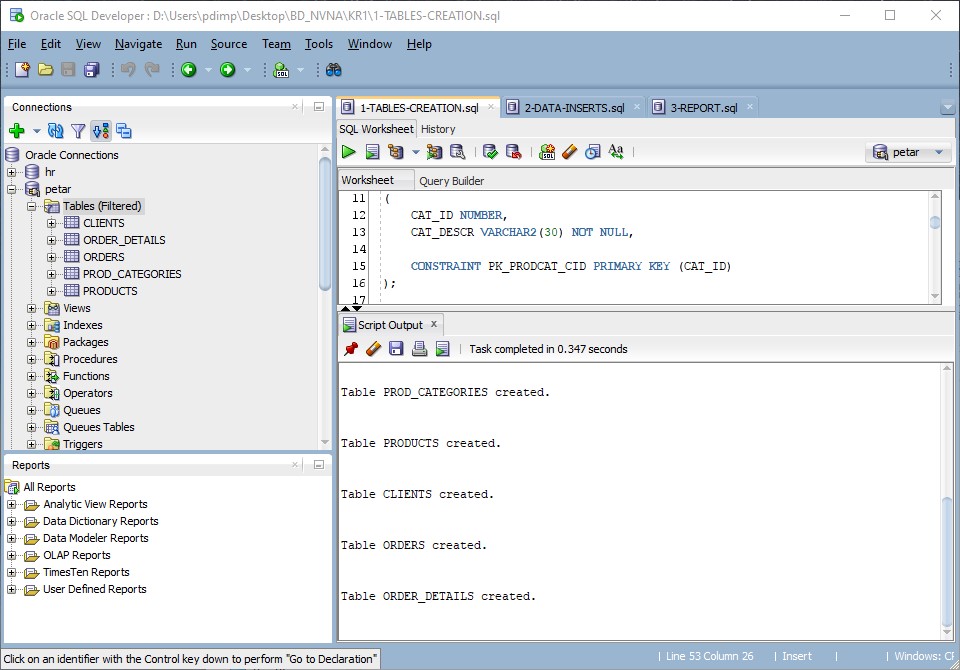
|  |
| --- |
| CREATE USER petar IDENTIFIED by &pass;  GRANT "DBA" TO petar;  UNDEFINE pass; |

****

****

1. **Създаване на таблиците**

|  |
| --- |
| CREATE TABLE PROD\_CATEGORIES  (  CAT\_ID NUMBER,  CAT\_DESCR VARCHAR2(30) NOT NULL,    CONSTRAINT PK\_PRODCAT\_CID PRIMARY KEY (CAT\_ID)  );    CREATE TABLE PRODUCTS  (  PROD\_ID NUMBER,  CAT\_ID NUMBER NOT NULL,  PROD\_DESCR VARCHAR(30) NOT NULL,  PROD\_PRICE NUMBER(8,2) NOT NULL,    CONSTRAINT PK\_PRODS\_PID  PRIMARY KEY (PROD\_ID),  CONSTRAINT FK\_PRODS\_CID\_PRODCAT\_CID  FOREIGN KEY (CAT\_ID)  REFERENCES PROD\_CATEGORIES(CAT\_ID)  );    CREATE TABLE CLIENTS  (  CLIENT\_ID NUMBER,  CLIENT\_FIRST\_NAME VARCHAR2(20) NOT NULL,  CLIENT\_LAST\_NAME VARCHAR2(20) NOT NULL,  CLIENT\_UCN CHAR(10),    CONSTRAINT PK\_CLNTS\_CLID  PRIMARY KEY (CLIENT\_ID)  );    CREATE TABLE ORDERS  (  ORDER\_ID NUMBER,  CLIENT\_ID NUMBER NOT NULL,  ORDER\_DATE DATE NOT NULL,    CONSTRAINT PK\_ORDRS\_OID  PRIMARY KEY (ORDER\_ID),  CONSTRAINT FK\_ORDRS\_OID\_CLNTS\_CLID  FOREIGN KEY (CLIENT\_ID)  REFERENCES CLIENTS(CLIENT\_ID)  );  CREATE TABLE ORDER\_DETAILS  (  ORDER\_ID NUMBER NOT NULL,  PROD\_ID NUMBER NOT NULL,  PROD\_COUNT NUMBER NOT NULL,    CONSTRAINT FK\_ORDRDET\_OID\_ORDRS\_OID  FOREIGN KEY (ORDER\_ID)  REFERENCES ORDERS(ORDER\_ID),  CONSTRAINT FK\_ORDRDET\_PID\_PRODS\_PID  FOREIGN KEY (PROD\_ID)  REFERENCES PRODUCTS(PROD\_ID)  ); |

****

1. **Вмъкване на данни в таблиците**

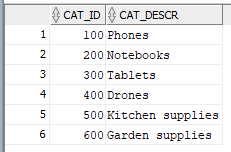
|  |
| --- |
| INSERT ALL  INTO PROD\_CATEGORIES (cat\_id, cat\_descr) VALUES (100, 'Phones')  INTO PROD\_CATEGORIES (cat\_id, cat\_descr) VALUES (200, 'Notebooks')  INTO PROD\_CATEGORIES (cat\_id, cat\_descr) VALUES (300, 'Tablets')  INTO PROD\_CATEGORIES (cat\_id, cat\_descr) VALUES (400, 'Drones')  INTO PROD\_CATEGORIES (cat\_id, cat\_descr) VALUES (500, 'Kitchen supplies')  INTO PROD\_CATEGORIES (cat\_id, cat\_descr) VALUES (600, 'Garden supplies')  SELECT \* FROM dual;  INSERT ALL  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (106, 100, 'Kids phone 4S', 19.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (107, 100, 'Gaming phone 12XS+', 2499.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (108, 100, 'Work phone 10', 149.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (109, 100, 'Home phone 3G', 9.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (110, 100, 'Brick 1', 9.99)    INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (211, 200, 'Mega Note', 1499.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (212, 200, 'Noted One', 1999.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (213, 200, 'Brick Mega Gaming 3', 9999.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (214, 200, 'Gaming Pro 10', 4999.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (215, 200, 'WorkBook 12', 1479.99)    INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (301, 300, 'Kiddy Tab 2', 49.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (302, 300, 'Worker Pro', 149.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (303, 300, 'Gamers Wish', 349.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (304, 300, 'WorkingTab 3', 299.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (305, 300, 'HomeTabby', 199.99)    INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (436, 400, 'Military Drone 10', 1999.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (437, 400, 'Medical Drone Pro Health', 2999.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (438, 400, 'Spying Drone 2', 199.99)    INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (501, 500, 'Blender', 49.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (502, 500, 'Toaster', 21.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (503, 500, 'Microwave', 149.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (504, 500, 'Juicer', 69.99)  INTO PRODUCTS (PROD\_ID, CAT\_ID, PROD\_DESCR, PROD\_PRICE) VALUES (505, 500, 'Coffe grinder', 36.99)  SELECT \* FROM dual;  INSERT ALL  INTO CLIENTS (CLIENT\_ID, CLIENT\_FIRST\_NAME, CLIENT\_LAST\_NAME, CLIENT\_UCN) VALUES (1001, 'Ivan', 'Ivanov', '1524023512')  INTO CLIENTS (CLIENT\_ID, CLIENT\_FIRST\_NAME, CLIENT\_LAST\_NAME, CLIENT\_UCN) VALUES (1002, 'Ivanka', 'Ivanova', '1525623512')  INTO CLIENTS (CLIENT\_ID, CLIENT\_FIRST\_NAME, CLIENT\_LAST\_NAME, CLIENT\_UCN) VALUES (1003, 'Vanio', 'Ivanovich', '1524468512')  INTO CLIENTS (CLIENT\_ID, CLIENT\_FIRST\_NAME, CLIENT\_LAST\_NAME, CLIENT\_UCN) VALUES (1004, 'Venci', 'Venciev', '7584652310')  INTO CLIENTS (CLIENT\_ID, CLIENT\_FIRST\_NAME, CLIENT\_LAST\_NAME, CLIENT\_UCN) VALUES (1005, 'Pesho', 'Peshov', '7526213252')  INTO CLIENTS (CLIENT\_ID, CLIENT\_FIRST\_NAME, CLIENT\_LAST\_NAME, CLIENT\_UCN) VALUES (1006, 'Gosho', 'Goshev', '7563125262')  SELECT \* FROM dual;  INSERT ALL  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (5168, 1001, '31-may-98')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (5615, 1001, '2-may-98')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (8456, 1003, '1-may-99')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (8452, 1005, '4-may-00')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (7897, 1003, '21-may-11')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (1567, 1004, '11-may-20')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (1256, 1002, '23-may-85')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (5631, 1002, '16-may-98')  INTO ORDERS (ORDER\_ID, CLIENT\_ID, ORDER\_DATE) VALUES (9542, 1006, '17-may-98')  SELECT \* FROM dual;  INSERT ALL  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (5168, 437, 10)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (5168, 436, 2)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (5615, 215, 14)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (8456, 501, 1)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (8452, 107, 3)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (7897, 436, 110)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (1567, 502, 2)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (1256, 305, 2)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (5631, 213, 8)  INTO ORDER\_DETAILS (ORDER\_ID, PROD\_ID, PROD\_COUNT) VALUES (9542, 503, 9)  SELECT \* FROM dual;  COMMIT; |

1. **Describe на таблиците и Select на всички вмъкнати данни**
2. **PROD\_CATEGORIES**

*- DESCRIBE PROD\_CATEGORIES;*

|  |
| --- |
| Name Null? Type  --------- -------- ------------  CAT\_ID NOT NULL NUMBER  CAT\_DESCR NOT NULL VARCHAR2(30) |

*- SELECT \* FROM PROD\_CATEGORIES;*



1. **PRODUCTS**

*- DESCRIBE PRODUCTS;*

|  |
| --- |
| Name Null? Type  ---------- -------- ------------  PROD\_ID NOT NULL NUMBER  CAT\_ID NOT NULL NUMBER  PROD\_DESCR NOT NULL VARCHAR2(30)  PROD\_PRICE NOT NULL NUMBER(8,2) |

*- SELECT \* FROM PRODUCTS;*

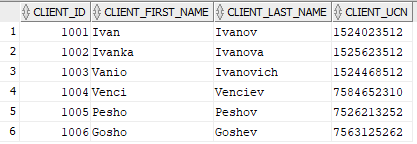


1. **CLIENTS**

*- DESCRIBE CLIENTS;*

|  |
| --- |
| Name Null? Type  ----------------- -------- ------------  CLIENT\_ID NOT NULL NUMBER  CLIENT\_FIRST\_NAME NOT NULL VARCHAR2(20)  CLIENT\_LAST\_NAME NOT NULL VARCHAR2(20)  CLIENT\_UCN CHAR(10) |

*- SELECT \* FROM CLIENTS;*

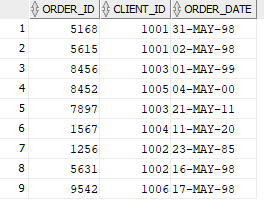


1. **ORDERS**

*- DESCRIBE ORDERS;*

|  |
| --- |
| Name Null? Type  ---------- -------- ------  ORDER\_ID NOT NULL NUMBER  CLIENT\_ID NOT NULL NUMBER  ORDER\_DATE NOT NULL DATE |

*- SELECT \* FROM ORDERS;*

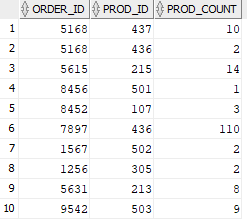


1. **ORDER\_DETAILS**

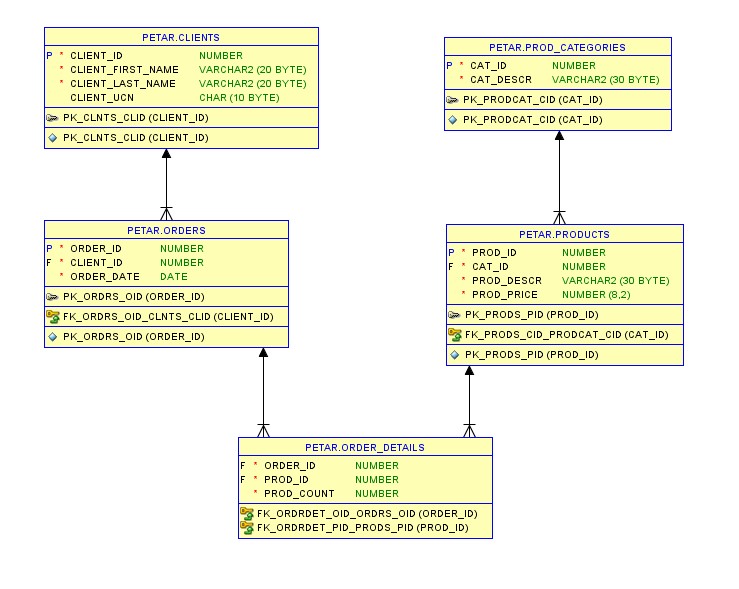
*- DESCRIBE ORDER\_DETAILS;*

|  |
| --- |
| Name Null? Type  ---------- -------- ------  ORDER\_ID NOT NULL NUMBER  PROD\_ID NOT NULL NUMBER  PROD\_COUNT NOT NULL NUMBER |

*- SELECT \* FROM ORDER\_DETAILS;*



1. **Графично и писмено представяне на таблиците и техните връзки**

****

***Таблица CLIENTS и ORDERS:***

- една самостоятелна връзка, независима, един към много осъществена чрез primary key PK\_CLNTS\_CLID по колона CLIENT\_ID от CLIENTS и foreign key FK\_ORDRS\_OID\_CLNTS\_CLID по колона CLIENT\_ID от ORDERS. Един клиент осъществява много поръчки (1:n)

***Таблица PROD\_CATEGORIES и PRODUCTS:***

- една самостоятелна връзка, независима, един към много осъществена чрез primary key PK\_PRODCAT\_CID по колона CAT\_ID от PROD\_CATEGORIES и foreign key FK\_PRODS\_CID\_PRODCAT\_CID по колона CAT\_ID от PRODUCTS. От една категория има много продукти (1:n)

***Таблица ORDERS и PRODUCTS***

- една връзка много към много - реализира се чрез 2 връзки 1 към много с помощта на трета таблица (ORDER\_DETAILS) осъществено по следния начин: чрез primary key PK\_ORDRS\_OID - колона ORDER\_ID от таблица ORDERS, primary key PK\_PRODS\_PID - колона CAT\_ID от таблица PRODUCTS и съответно foreign key FK\_ORDRDET\_OID\_ORDRS\_OID - колона ORDER\_ID от таблица ORDER\_DETAILS, foreign key FK\_ORDDET\_PID\_PRODS\_PID - колона PROD\_ID от таблица ORDER\_DETAILS. Много продукти се включват в много поръчки (n:m)

1. **Извеждане на справка от всички таблици**

|  |
| --- |
| SELECT  C.CLIENT\_ID,  C.CLIENT\_FIRST\_NAME,  C.CLIENT\_LAST\_NAME,  C.CLIENT\_UCN,  O.ORDER\_ID,  O.ORDER\_DATE,  O\_DET.PROD\_ID,  P.PROD\_DESCR,  O\_DET.PROD\_COUNT,  P.PROD\_PRICE,  O\_DET.PROD\_COUNT \* P.PROD\_PRICE AS FINAL\_PRICE,  P.CAT\_ID,  P\_CAT.CAT\_DESCR  FROM CLIENTS C  JOIN ORDERS O  ON C.CLIENT\_ID = O.CLIENT\_ID  JOIN ORDER\_DETAILS O\_DET  ON O.ORDER\_ID = O\_DET.ORDER\_ID  JOIN PRODUCTS P  ON O\_DET.PROD\_ID = P.PROD\_ID  JOIN PROD\_CATEGORIES P\_CAT  ON P.CAT\_ID = P\_CAT.CAT\_ID  ORDER BY  C.CLIENT\_ID,  O.ORDER\_DATE; |

