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Отчет по лабораторной работе № 5  
«Визуальный интерфейс Visual FoxPro»  
дисциплины «Банки и базы данных»

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## **1 Цели работы**

- изучение основных средств визуального интерфейса;
- обработка событий.

## **2 Задание**

На основе представленной частичной реализации создать кнопки для добавления, поиска, изменения и удаления записей из таблицы. Реализовать представление картинок на форме.

Добавить в проект вторую форму для реализации отображения таблицы Производители, связанной с таблицей SCLAD. Реализовать взаимные переходы между формами с помощью меню.

### 3 Ход работы

Пусть имеются база данных с таблицами products и manufacturers (рисунок 3.1).

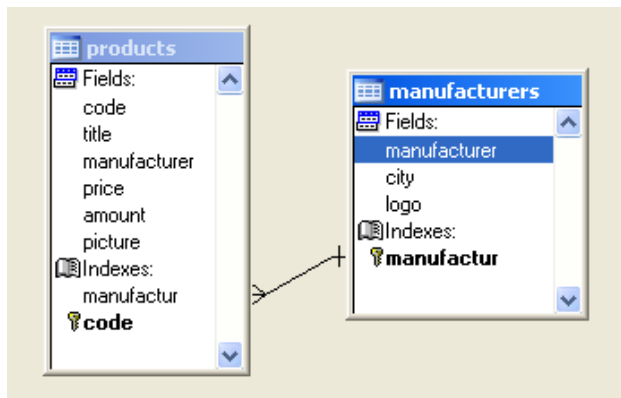


Рисунок 1 – Схема базы данных

Визуальный интерфейс разработанного класса изображен на рисунке 3.2.

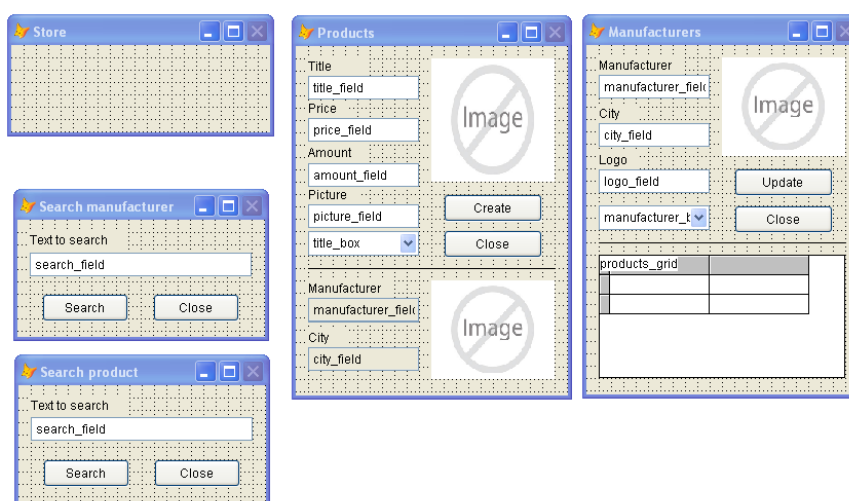


Рисунок 2 – Визуальный интерфейс класса CRUD\_formset

Далее приведены листинги используемых методов класса.

```
init:
```

```
SET DELETED ON
```

```
create_manufacturer:
```

```

PARAMETERS manufacturer_name , manufacturer_city ,
    manufacturer_logo

INSERT INTO manufacturers (manufacturer , city , logo);
VALUES (manufacturer_name , manufacturer_city , manufacturer_logo)

create_product:

PARAMETERS product_title , product_manufacturer , product_price ,
    product_amount , product_picture

INSERT INTO products (title , manufacturer , price , amount ,
    picture);
VALUES (product_title , product_manufacturer , product_price ,
    product_amount , product_picture)

delete_manufacturer:

PARAMETERS product_title , product_manufacturer , product_price ,
    product_amount , product_picture

INSERT INTO products (title , manufacturer , price , amount ,
    picture);
VALUES (product_title , product_manufacturer , product_price ,
    product_amount , product_picture)

delete_product:

PARAMETERS product_title , product_manufacturer , product_price ,
    product_amount , product_picture

INSERT INTO products (title , manufacturer , price , amount ,
    picture);
VALUES (product_title , product_manufacturer , product_price ,
    product_amount , product_picture)

get_manufacturers_data:

PARAMETERS cur_manufacturer

```

```

SELECT * FROM manufacturers ;
WHERE manufacturers.manufacturer = cur_manufacturer ;
INTO CURSOR manufacturers_data

thisformset.manufacturers_form.manufacturer_field.Value =
    manufacturers_data.manufacturer
thisformset.manufacturers_form.manufacturer_box.value =
    manufacturers_data.manufacturer
thisformset.manufacturers_form.city_field.value =
    manufacturers_data.city
thisformset.manufacturers_form.logo_field.value =
    manufacturers_data.logo
thisformset.manufacturers_form.manufacturer_logo.Picture = ;
'hp\budnyjj\university\labs\bibd\lab_5_refactored\pics\
    manufacturers\' + manufacturers_data.logo

SELECT title as Product, price as Price, amount as Amount FROM
    products ;
WHERE products.manufacturer = cur_manufacturer ;
INTO CURSOR products_data

thisformset.manufacturers_form.products_grid.RecordSource = '
    products_data'

get_products_data:

PARAMETER product_code

SELECT * FROM ;
products INNER JOIN manufacturers ON products.manufacturer =
    manufacturers.manufacturer ;
WHERE products.code = product_code ;
INTO CURSOR products_data

thisformset.products_form.title_field.Value = products_data.
    title
thisformset.products_form.price_field.value = products_data.
    price
thisformset.products_form.amount_field.value = products_data.
    amount

```

```

thisformset.products_form.picture_field.value = products_data.
    picture
thisformset.products_form.product_picture.Picture = ;
'hp\budnyjj\university\labs\bibd\lab_5_refactored\pics\products
\' + products_data.picture

thisformset.products_form.manufacturer_box.value = products_data
    .manufacturer_a
thisformset.products_form.manufacturer_field.value =
    products_data.manufacturer_a
thisformset.products_form.city_field.value = products_data.city
thisformset.products_form.manufacturer_logo.Picture = ;
'hp\budnyjj\university\labs\bibd\lab_5_refactored\pics\
    manufacturers\' + products_data.logo

manufacturers_form_clear_fields:

thisFormSet.manufacturers_form.manufacturer_field.Value = ''
thisFormSet.manufacturers_form.city_field.Value = ''
thisFormSet.manufacturers_form.logo_field.Value = ''
thisFormSet.manufacturers_form.products_grid.RecordSource = ''

manufacturers_form_create_preparation:

thisFormSet.manufacturers_form_hide_buttons
thisFormSet.manufacturers_form.create_button.Visible = .T.

thisFormSet.manufacturers_form_unlock_fields

thisFormSet.manufacturers_form.manufacturer_field.Visible = .T.
thisFormSet.manufacturers_form.manufacturer_label.Visible = .T.
thisFormSet.manufacturers_form.manufacturer_box.Visible = .F.

thisFormSet.manufacturers_form.logo_field.Visible = .T.
thisFormSet.manufacturers_form.logo_label.Visible = .T.

thisformset.manufacturers_get_available_manufacturers
cur_manufacturer = thisformset.manufacturers_form.
    manufacturer_box.value
thisformset.get_manufacturers_data(cur_manufacturer)
thisFormSet.manufacturers_form_clear_fields

```

```

thisFormSet.manufacturers_form.Visible = .T.

manufacturers_form_delete_preparation:

thisFormSet.manufacturers_form_hide_buttons
thisFormSet.manufacturers_form.delete_button.Visible = .T.

thisFormSet.manufacturers_form_lock_fields

thisFormSet.manufacturers_form.logo_field.Visible = .F.
thisFormSet.manufacturers_form.logo_label.Visible = .F.

thisFormSet.manufacturers_form.manufacturer_field.Visible = .F.
thisFormSet.manufacturers_form.manufacturer_label.Visible = .F.
thisFormSet.manufacturers_form.manufacturer_box.Visible = .T.

thisformset.manufacturers_get_available_manufacturers
cur_manufacturer = thisformset.manufacturers_form.
    manufacturer_box.value
thisformset.get_manufacturers_data(cur_manufacturer)

thisFormSet.manufacturers_form.Visible = .T.

manufacturers_form_hide_buttons:

thisFormSet.manufacturers_form.update_button.Visible = .F.
thisFormSet.manufacturers_form.delete_button.Visible = .F.
thisFormSet.manufacturers_form.create_button.Visible = .F.

manufacturers_form_lock_fields:

thisFormSet.manufacturers_form.manufacturer_field.ReadOnly = .T.
thisFormSet.manufacturers_form.city_field.ReadOnly = .T.

manufacturers_form_unlock_fields:

thisFormSet.manufacturers_form.manufacturer_field.ReadOnly = .F.
thisFormSet.manufacturers_form.city_field.ReadOnly = .F.

```



```

manufacturers_form_update_preparation:

thisFormSet.manufacturers_form_hide_buttons
thisFormSet.manufacturers_form.update_button.Visible = .T.

thisFormSet.manufacturers_form_unlock_fields

thisFormSet.manufacturers_form.manufacturer_field.Visible = .T.
thisFormSet.manufacturers_form.manufacturer_label.Visible = .T.

thisFormSet.manufacturers_form.logo_field.Visible = .T.
thisFormSet.manufacturers_form.logo_label.Visible = .T.
thisFormSet.manufacturers_form.manufacturer_box.Visible = .T.

thisformset.manufacturers_get_available_manufacturers
cur_manufacturer = thisformset.manufacturers_form.
    manufacturer_box.value
thisformset.get_manufacturers_data(cur_manufacturer)

thisFormSet.manufacturers_form.Visible = .T.

manufacturers_get_available_manufacturers:

thisFormSet.manufacturers_form_hide_buttons
thisFormSet.manufacturers_form.update_button.Visible = .T.

thisFormSet.manufacturers_form_unlock_fields

thisFormSet.manufacturers_form.manufacturer_field.Visible = .T.
thisFormSet.manufacturers_form.manufacturer_label.Visible = .T.

thisFormSet.manufacturers_form.logo_field.Visible = .T.
thisFormSet.manufacturers_form.logo_label.Visible = .T.
thisFormSet.manufacturers_form.manufacturer_box.Visible = .T.

thisformset.manufacturers_get_available_manufacturers
cur_manufacturer = thisformset.manufacturers_form.
    manufacturer_box.value
thisformset.get_manufacturers_data(cur_manufacturer)

thisFormSet.manufacturers_form.Visible = .T.

```

```

products_form_clear_fields:

thisFormSet.products_form.title_field.Value = ''
thisFormSet.products_form.price_field.Value = ''
thisFormSet.products_form.amount_field.Value = ''
thisFormSet.products_form.picture_field.Value = ''


products_form_create_preparation:

thisFormSet.products_form_unlock_fields

thisFormSet.products_form_hide_buttons

thisFormSet.products_form.title_box.Visible = .F.

thisFormSet.products_form.title_box.Visible = .F.

thisFormSet.products_form.create_button.Visible = .T.

thisFormSet.products_form.title_label.Visible = .T.
thisFormSet.products_form.title_field.Visible = .T.

thisFormSet.products_form.picture_label.Visible = .T.
thisFormSet.products_form.picture_field.Visible = .T.

thisFormSet.products_form.manufacturer_field.Visible = .F.
thisFormSet.products_form.manufacturer_box.Visible = .T.

thisformset.products_get_available_products
product_code = VAL(thisformset.products_form.Title_box.value)
thisformset.get_products_data(product_code)
thisFormSet.products_form_clear_fields

thisFormSet.products_form.Visible = .T.


products_form_delete_preparation:

thisFormSet.products_form_lock_fields
thisFormSet.products_form_hide_buttons

thisFormSet.products_form.title_box.Visible = .T.

```

```

thisFormSet.products_form.delete_button.Visible = .T.

thisFormSet.products_form.title_label.Visible = .F.
thisFormSet.products_form.title_field.Visible = .F.

thisFormSet.products_form.picture_label.Visible = .F.
thisFormSet.products_form.picture_field.Visible = .F.

thisFormSet.products_form.manufacturer_field.Visible = .T.
thisFormSet.products_form.manufacturer_box.Visible = .F.

thisformset.products_get_available_products
product_code = VAL(thisformset.products_form.Title_box.value)
thisformset.get_products_data(product_code)

thisFormSet.products_form.Visible = .T.

products_form_hide_buttons:

thisFormSet.products_form.update_button.Visible = .F.
thisFormSet.products_form.delete_button.Visible = .F.
thisFormSet.products_form.create_button.Visible = .F.

products_form_lock_fields:

thisFormSet.products_form.title_field.ReadOnly = .T.
thisFormSet.products_form.price_field.ReadOnly = .T.
thisFormSet.products_form.amount_field.ReadOnly = .T.

products_form_unlock_fields:

thisFormSet.products_form.title_field.ReadOnly = .F.
thisFormSet.products_form.price_field.ReadOnly = .F.
thisFormSet.products_form.amount_field.ReadOnly = .F.

products_form_update:

thisFormSet.products_form_unlock_fields
thisFormSet.products_form_hide_buttons

```

```

thisFormSet.products_form.title_box.Visible = .T.
thisFormSet.products_form.update_button.Visible = .T.

thisFormSet.products_form.title_label.Visible = .T.
thisFormSet.products_form.title_field.Visible = .T.

thisFormSet.products_form.picture_label.Visible = .T.
thisFormSet.products_form.picture_field.Visible = .T.

thisFormSet.products_form.manufacturer_field.Visible = .F.
thisFormSet.products_form.manufacturer_box.Visible = .T.

thisformset.products_get_available_products
product_code = VAL(thisformset.products_form.Title_box.value)
thisformset.get_products_data(product_code)

thisFormSet.products_form.Visible = .T.

products_get_available_products:

SELECT title , code FROM products INTO CURSOR available_products

WITH thisFormSet.products_form.title_box
.rowSource = 'available_products'
.rowSourceType = 2
.boundColumn = 2
.boundTo = .t.
.Style = 2
.ListIndex = 1
ENDWITH

SELECT manufacturer FROM manufacturers INTO CURSOR
available_manufacturers

WITH thisFormSet.products_form.manufacturer_box
.rowSource = 'available_manufacturers'
.rowSourceType = 2
.boundColumn = 1
.boundTo = .t.
.Style = 2
.ListIndex = 1
ENDWITH

```

```
search_manufacturer:
```

```
PARAMETERS manufacturer_name
manufacturer_query = '\%' + ALLTRIM(manufacturer_name) + '\%'

SELECT manufacturer as Manufacturer, city AS City ;
FROM manufacturers ;
WHERE UPPER(manufacturer) LIKE UPPER(ALLTRIM(manufacturer_query)
)
```

```
search_manufacturer_form_search:
```

```
thisFormSet.search_manufacturer_form.Visible = .T.
```

```
search_product:
```

```
PARAMETERS product_name
product_query = '\%' + ALLTRIM(product_name) + '\%'

SELECT title as Title, manufacturer AS Manufacturer, price AS
Price, amount AS Amount ;
FROM products ;
WHERE UPPER(title) LIKE UPPER(ALLTRIM(product_query))
```

```
search_product_form_search:
```

```
thisFormSet.search_product_form.Visible = .T.
```

```
update_manufacturer:
```

```
PARAMETERS manufacturer_old_name, manufacturer_new_name,
manufacturer_city, manufacturer_logo

UPDATE manufacturers SET ;
manufacturer = manufacturer_new_name, city=manufacturer_city,
logo=manufacturer_logo;
WHERE manufacturer = manufacturer_old_name
```

```

UPDATE products SET ;
manufacturer = manufacturer_new_name ;
WHERE manufacturer = manufacturer_old_name

update_product:

PARAMETERS product_code, product_title, product_manufacturer,
product_price, product_amount, product_picture

UPDATE products SET ;
title = product_title, manufacturer = product_manufacturer,
price = product_price, amount = product_amount, picture =
product_picture ;
WHERE code = product_code

```

Рисунок 3 – crud\_formset\_procedures

```

DEFINE MENU store_menu IN store_form BAR

DEFINE PAD products_pad OF store_menu PROMPT "Products"
ON PAD products_pad OF store_menu ACTIVATE POPUP products_pad
DEFINE POPUP products_pad MARGIN RELATIVE SHADOW COLOR SCHEME 4

DEFINE BAR 1 OF products_pad PROMPT "\<Create"
ON SELECTION BAR 1 OF products_pad crud_formset.
products_form_create_preparation

DEFINE BAR 2 OF products_pad PROMPT "\<Update"
ON SELECTION BAR 2 OF products_pad crud_formset.
products_form_update_preparation

DEFINE BAR 3 OF products_pad PROMPT "\<Search"
ON SELECTION BAR 3 OF products_pad crud_formset.
search_product_form_search_preparation

DEFINE BAR 4 OF products_pad PROMPT "\<Delete"
ON SELECTION BAR 4 OF products_pad crud_formset.
products_form_delete_preparation

DEFINE PAD manufacturers_pad OF store_menu PROMPT "Manufacturers"
ON PAD manufacturers_pad OF store_menu ACTIVATE POPUP
manufacturers_pad

```

```

DEFINE POPUP manufacturers_pad MARGIN RELATIVE SHADOW COLOR SCHEME
4

DEFINE BAR 1 OF manufacturers_pad PROMPT "\<Create"
ON SELECTION BAR 1 OF manufacturers_pad crud_formset.
    manufacturers_form_create_preparation

DEFINE BAR 2 OF manufacturers_pad PROMPT "\<Update"
ON SELECTION BAR 2 OF manufacturers_pad crud_formset.
    manufacturers_form_update_preparation

DEFINE BAR 3 OF manufacturers_pad PROMPT "\<Search"
ON SELECTION BAR 3 OF manufacturers_pad crud_formset.
    search_manufacturer_form_search_preparation

DEFINE BAR 4 OF manufacturers_pad PROMPT "\<Delete"
ON SELECTION BAR 4 OF manufacturers_pad crud_formset.
    manufacturers_form_delete_preparation

DEFINE PAD misc_pad OF store_menu PROMPT "Misc"
ON PAD misc_pad OF store_menu ACTIVATE POPUP misc_pad
DEFINE POPUP misc_pad MARGIN RELATIVE SHADOW COLOR SCHEME 4

DEFINE BAR 1 OF misc_pad PROMPT "\<Report"
ON SELECTION BAR 1 OF misc_pad DO view_report

DEFINE BAR 2 OF misc_pad PROMPT "\<Show tables"
ON SELECTION BAR 2 OF misc_pad DO show_tables

DEFINE BAR 3 OF misc_pad PROMPT "\<Exit"
ON SELECTION BAR 3 OF misc_pad _SCREEN.ActiveForm.Release

ACTIVATE MENU store_menu NOWAIT

```

Рисунок 4 – store\_form procedures

```

title_box.click:

product_code = VAL(thisformset.products_form.Title_box.value)
thisformset.get_products_data(product_code)

```

```

close_button.click :

thisFormSet.products_form.Visible = .F.

delete_button.click :

product_code = VAL(thisFormSet.products_form.title_box.Value)
thisFormSet.delete_product(product_code)

thisFormSet.products_get_available_products
product_code = VAL(thisformset.products_form.Title_box.value)
thisformset.get_products_data(product_code)

delete_button.click :

code= VAL(thisFormSet.products_form.title_box.value)
new_title = thisFormSet.products_form.title_field.value
new_price = thisFormSet.products_form.price_field.value
new_amount = thisFormSet.products_form.amount_field.value
new_manufacturer = thisFormSet.products_form.manufacturer_box.
    value
new_picture = thisFormSet.products_form.picture_field.value

thisFormSet.update_product(code, new_title, new_manufacturer,
    new_price, new_amount, new_picture)

thisformset.products_get_available_products
product_code = VAL(thisformset.products_form.Title_box.value)
thisformset.get_products_data(product_code)

create_button.click :

new_title = thisFormSet.products_form.title_field.value
new_price = VAL(thisFormSet.products_form.price_field.value)
new_amount = VAL(thisFormSet.products_form.amount_field.value)
new_manufacturer = thisFormSet.products_form.manufacturer_box.
    value
new_picture = thisFormSet.products_form.picture_field.value

thisFormSet.create_product(new_title, new_manufacturer, new_price,
    new_amount, new_picture)

```



```
thisFormSet.products_form_create_preparation
```

### Рисунок 5 – products\_form procedures

```
manufacturer_box.click:
```

```
cur_manufacturer = thisformset.manufacturers_form.manufacturer_box  
    .value  
thisformset.get_manufacturers_data(cur_manufacturer)
```

```
delete_button.click:
```

```
cur_manufacturer = thisFormSet.manufacturers_form.manufacturer_box  
    .Value  
thisFormSet.delete_manufacturer(cur_manufacturer)
```

```
thisformset.manufacturers_get_available_manufacturers  
cur_manufacturer = thisformset.manufacturers_form.manufacturer_box  
    .value  
thisformset.get_manufacturers_data(cur_manufacturer)
```

```
close_button.click:
```

```
thisFormSet.manufacturers_form.Visible = .F.
```

```
create_button.click:
```

```
new_manufacturer = thisFormSet.manufacturers_form.  
    manufacturer_field.value  
new_city = thisFormSet.manufacturers_form.city_field.value  
new_logo = thisFormSet.manufacturers_form.logo_field.value  
  
thisFormSet.create_manufacturer(new_manufacturer, new_city,  
    new_logo)
```

```
thisFormSet.manufacturers_form_create_preparation
```

```
update_button.click:
```

```

old_manufacturer = thisFormSet.manufacturers_form.manufacturer_box
    .value
new_manufacturer = thisFormSet.manufacturers_form.
    manufacturer_field.value
new_city = thisFormSet.manufacturers_form.city_field.value
new_logo = thisFormSet.manufacturers_form.logo_field.value

thisFormSet.update_manufacturer(old_manufacturer, new_manufacturer
    , new_city, new_logo)

thisformset.manufacturers_get_available_manufacturers
new_manufacturer = thisformset.manufacturers_form.manufacturer_box
    .value
thisformset.get_manufacturers_data(new_manufacturer)

```

**Рисунок 6 – manufacturers\_form procedures**

```

close_button.click:

thisFormSet.search_product_form.Visible = .F.

search_button:

product_name = thisFormSet.search_product_form.search_field.value
thisFormSet.search_product(product_name)

```

**Рисунок 7 – product\_search\_form procedures**

```

close_button.click:

thisFormSet.search_product_form.Visible = .F.

search_button:

product_name = thisFormSet.search_product_form.search_field.value
thisFormSet.search_product(product_name)

```

**Рисунок 8 – manufacturer\_search\_form procedures**

```

PROCEDURE insert_data
    INSERT INTO products (title , manufacturer , price , amount ,
picture) VALUES ("Pidzhak", "Red Hat", 1000, 15, "pidzhak.png")
    INSERT INTO products (title , manufacturer , price , amount ,
picture) VALUES ("Plasch", "Red Hat", 1300, 10, "plasch.png")
    INSERT INTO products (title , manufacturer , price , amount ,
picture) VALUES ("Podkova", "Roga \& Kopyta", 20, 40, "podkova.
png")

    INSERT INTO manufacturers (manufacturer , city , logo)
VALUES ("Roga \& Kopyta", "Mogilev", "roga_kopyta.png")
    INSERT INTO manufacturers (manufacturer , city , logo)
VALUES ("Red Hat", "Brest", "red_hat.png")
ENDPROC

PROCEDURE delete_data
    USE products
    DELETE FROM products
    PACK
    USE manufacturers
    DELETE FROM manufacturers
    PACK
ENDPROC

PROCEDURE run_crud
    SET CLASSLIB TO "hp\budnyjj\university\labs\bibd\
lab_5_refactored\class\crud_formset.vcx" ADDITIVE
    crud_formset = CREATEOBJECT("crud_formset")
    crud_formset.Show
    READ EVENTS
    RETURN
ENDPROC

PROCEDURE view_report
    REPORT FORM hp\budnyjj\university\labs\bibd\
lab_5_refactored\report\manufacturers.frx PREVIEW
ENDPROC

PROCEDURE view_report
    reportForm = CREATEOBJECT('Form')
    WITH reportForm
        .caption = "Report"
        .windowState = 2

```

```

        .Show()
    ENDWITH
    REPORT FORM hp\budnyjj\university\labs\bibd\
lab_5_refactored\report\manufacturers.frx PREVIEW WINDOW (
reportForm.Name)

    reportForm.Release()
    RELEASE reportForm
ENDPROC

PROCEDURE show_tables
    SELECT products.title as Title, ;
        products.price as Price, products.amount as Amount,
products.picture as Picture, ;
        products.manufacturer as Manufacturer, manufacturers.city
as City, manufacturers.logo as Logo ;
    FROM products INNER JOIN manufacturers ON products.
manufacturer = manufacturers.manufacturer
ENDPROC

```

Рисунок 9 – procedures

## **4 Вывод**

В ходе лабораторной работы были изучены возможности Fox Pro по созданию собственных классов.