

МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ
ФЕДЕРАЦИИ

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Отчёт
по лабораторной работе № 5

”Управляемые провайдеры ADO.NET. Управляемый провайдер OLE DB.
Работа с базами данных с использованием управляемого провайдера OLE
DB”

по дисциплине
“Программирование на C#”

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Цель: изучить управляемые провайдеры ADO.NET, на примере управляемого провайдера OLE DB рассмотреть механизмы установления соединения с базами данных (в том числе Microsoft Access), построение команд SQL, заполнение данными объекта DataSet.

Задание

Реализовать в программе установление соединения с исходной базой данных, реализовать и выполнить не менее трёх команд SQL по работе с исходной базой данных, реализовать заполнение данными исходной базы данных объекта DataSet.

Примечание: исходная база данных – база данных Microsoft Access, с использованием которой выполнялись лабораторной работы 3, 4.

Текст программы

```
using System;

using System.Collections.Generic;

using System.ComponentModel;

using System.Data;

using System.Data.OleDb;

using System.Data.SqlClient;

using System.Drawing;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.Windows.Forms;

namespace lab4_csharp

{

    public partial class Form1 : Form

    {

        DataTable t1,t2,t3;
```

```

DataSet s1;

OleDbDataAdapter da, da1, da2;

OleDbCommand com;

DataRow r1;

bool dg2 = false;

DataRelation depwork,stuuni;

    OleDbConnection con;

String cmd = "select * from gorada";

String cmd1 = "select * from Students";

String cmd2 = "select * from Unis";

OleDbCommandBuilder bc;


public Form1()
{
    InitializeComponent();

    string conner= @"Provider=Microsoft.ACE.OLEDB.12.0;Data
Source=C:\Users\CHATW\Documents\bbc1.accdb";

    con = new OleDbConnection(conner);

    s1 = new DataSet();

}


private void Form1_Load(object sender, EventArgs e)
{

}


private void textBox1_TextChanged(object sender, EventArgs e)
{

```

```
}
```

```
private void comboBox1_SelectedIndexChanged(object sender, EventArgs e)
```

```
{
```

```
}
```

```
private void dataGridView1_CellContentClick(object sender,  
DataGridViewCellEventArgs e)
```

```
{
```

```
}
```

```
private void dataGridView1_RowStateChanged(object sender,  
DataGridViewRowStateChangedEventArgs e)
```

```
{
```

```
}
```

```
private void dataGridView1_SelectionChanged(object sender, EventArgs e)
```

```
{
```

```
    if(radioButton1.Checked==true)
```

```
        t1.DefaultView.RowFilter = "CityID = " +  
dataGridView1.CurrentRow.Cells["CityID"].Value;
```

```
        // dataGridView4.DataSource = t1;
```

```
}
```

```
private void button2_Click(object sender, EventArgs e)
```

```
{
```

```
}
```

```
private void button3_Click(object sender, EventArgs e)
```

```
{
```

```
}
```

```
private void dataGridView3_SelectionChanged(object sender, EventArgs e)
```

```
{
```

```
    if (radioButton2.Checked == true)
```

```
        t1.DefaultView.RowFilter = "UniID = " +  
dataGridView3.CurrentRow.Cells["UniID"].Value;
```

```
}
```

```
private void button2_Click_1(object sender, EventArgs e)
```

```
{
```

```
    try
```

```
    {
```

```
        DataRow[] cr1 = s1.Tables[1].Select("StudID = " + textBox1.Text);
```

```
        string coma = "delete from Students where StudID = " + textBox1.Text;
```

```
        com = new OleDbCommand(coma, con);
```

```
        con.Open();
```

```
        com.ExecuteNonQuery();
```

```
        con.Close();
```

```
        s1.Tables[1].Rows.Remove(cr1[0]);
```

```
        s1.Tables[1].AcceptChanges();
```

```
        t1.Clear();
```

```
        t1 = s1.Tables[1].Copy();
```

```
        dataGridView4.DataSource=t1;
```

```
    }  
    catch(Exception t)  
    {  
        MessageBox.Show(t.Message);  
    }  
}
```

```
private void checkBox1_MouseDown(object sender, MouseEventArgs e)  
{  
  
}
```

```
private void checkBox1_MouseUp(object sender, MouseEventArgs e)  
{  
  
}
```

```
private void checkBox1_CheckStateChanged(object sender, EventArgs e)  
{  
    if (checkBox1.Checked == true)  
    {  
        try {  
            string cm1 = "select max(gorada.CityID)+1 from gorada";  
            com = new OleDbCommand(cm1, con);  
            con.Open();  
            textBox2.Text = com.ExecuteScalar().ToString();  
            con.Close();  

```

```
        }catch(Exception t)
```

```

        {
            MessageBox.Show(t.Message);
        }

    }

    else
    {
        textBox2.Clear();
        textBox3.Clear();
    }
}

private void button3_Click_1(object sender, EventArgs e)
{
    if(checkBox1.Checked==true)
    {

        string coma = string.Format("insert into gorada values ({0},{1})",
textBox2.Text, textBox3.Text);

        com = new OleDbCommand(coma, con);
        con.Open();
        com.ExecuteNonQuery();
        con.Close();

        DataRow ro = s1.Tables[0].NewRow();
        ro[0] = textBox2.Text;
        ro[1] = textBox3.Text;
        s1.Tables[0].Rows.Add(ro);
        s1.Tables[0].AcceptChanges();

    }
}

```

```
}
```

```
private void button5_Click(object sender, EventArgs e)
```

```
{
```

```
    string coma = string.Format("select count(*) as QUANTITY from gorada inner  
join Students on gorada.CityID=Students.CityID where  
gorada.CityName='{0}'",textBox1.Text);
```

```
    com = new OleDbCommand(coma, con);
```

```
    con.Open();
```

```
    OleDbDataReader re = com.ExecuteReader();
```

```
    string a = "THE TOTAL NUMBER OF STUDENTS IN " + textBox1.Text + " IS : ";
```

```
    if(re.Read())
```

```
    {
```

```
        a += re["QUANTITY"].ToString();
```

```
        listBox1.Items.Add(a);
```

```
    }
```

```
    con.Close();
```

```
}
```

```
private void dataGridView2_CellContentClick(object sender,  
DataGridViewCellEventArgs e)
```

```
{
```

```
}
```

```
private void button4_Click(object sender, EventArgs e)
```

```
{
```

```
    //s1.Tables[0].Select();
```

```
    //DataRow[] r2 = tablitsa.Select("ID='" + tb4.Text + "'", "дата рождения");
```

```
    listBox1.Items.Clear();
```

```
    DataRow [] cr1 = s1.Tables[1].Select("StudID = "+textBox1.Text );
```



```

        foreach(DataRow cr in cr1)
        {
            listBox1.Items.Add("Names = " + cr["FName"].ToString() + "\t" +
cr["LName"].ToString());

            listBox1.Items.Add("Student ID = " + cr["StudID"].ToString());

            listBox1.Items.Add("\n");

            foreach (DataRow cr2 in ((DataRow)cr).GetParentRows(depwork))
            {
                listBox1.Items.Add(cr2["CityName"].ToString());

                foreach (DataRow cr3 in ((DataRow)cr).GetParentRows(stuuni))
                {
                    listBox1.Items.Add(cr3["UName"].ToString() + "\t" +
cr3["UAdd"].ToString());
                }
            }

            listBox1.Items.Add("\n");
        }
    }

```

```

    }

```

```

        private void dataGridView2_CellValueChanged(object sender,
DataGridViewCellEventArgs e)
        {
            //dg2 = true;

            //dataGridView2.Refresh();

        }
    }

```

```

private void button1_Click(object sender, EventArgs e)
{

    try
    {

        da = new OleDbDataAdapter(cmd, con);
        da.Fill(s1,"GORADA");

        da1 = new OleDbDataAdapter(cmd1,con);
        da1.Fill(s1, "STUDENTS");

        da2 = new OleDbDataAdapter(cmd2, con);
        da2.Fill(s1, "UNIVERSITIES");

        bc = new OleDbCommandBuilder(da);

        DataColumn pk = s1.Tables[0].Columns[0];
        DataColumn fk = s1.Tables[1].Columns[3];
        DataColumn pk1 = s1.Tables[2].Columns[0];
        DataColumn fk1 = s1.Tables[1].Columns[4];

        bc = new OleDbCommandBuilder(da);

        depwork = new DataRelation("depwork", pk, fk);
        stuuni = new DataRelation("stuuni", pk1, fk1);
        s1.Relations.Add(depwork);
        s1.Relations.Add(stuuni);

        dataGridView1.DataSource = s1.Tables[0];


        dataGridView2.DataSource = s1.Tables[1];
        dataGridView3.DataSource = s1.Tables[2];

        t1=s1.Tables[1].Clone();
        t1 = s1.Tables[1].Copy();
    }
}

```

```

        dataGridView4.DataSource = t1;

    }

    catch (Exception ex)
    {

        MessageBox.Show(ex.Message);

    }

}

}

}

```

Тестирование

Тестирование заполнения таблиц представлено на рисунке 1.

The screenshot shows a Windows application window titled "Form1" with a light gray background. On the left side, there are four data grids. The first grid has columns "CityID" and "CityName" and contains 6 rows of city data. The second grid has columns "StudID", "FName", "LName", "CityID", and "UnID" and contains 5 rows of student data. The third grid has columns "StudID", "FName", "LName", "CityID", and "UnID" and contains 1 row of student data. The fourth grid has columns "UnID", "UName", and "UAdd" and contains 5 rows of university data. On the right side, there is a control panel. At the top, there is a "FILL" button. Below it, there is a radio button labeled "Cities and Students" which is selected. Below the radio button, there are buttons for "DELETE", "QUANTITY", and "ADD". To the right of these buttons are input fields for "CityID" and "CityName". Below these input fields is a "SEARCH" button. At the bottom of the control panel, there is a radio button labeled "Unis and Students" which is not selected. The application window has standard Windows window controls (minimize, maximize, close) in the top right corner.

CityID	CityName
1	MOSCOW
2	KURSK
3	BELGOROD
4	TULA
5	OREL
6	PETROZAVODSK

StudID	FName	LName	CityID	UnID
100	ALINANI	SILWENGA	3	3
101	MUSONDA	SALIMU	2	1
102	ELIJAH	MUSETKA	1	2
103	ANDRFW	CHI7IRA	4	5

StudID	FName	LName	CityID	UnID
102	ELIJAH	MUSETKA	1	2

UnID	UName	UAdd
1	Kursk State	radishova 26
2	rudn	yugo zapadnaya
3	belgorod state	pabyedi 85
4	kazan state	pabyedi 20
5	Tula state	lenina 35

Рисунок 1 – Тестирование заполнения таблиц

Form1

CityID	CityName
13	CHIPATA
14	MALINSO
15	LUSAKA
16	ZEBRON
*	

StudID	FName	LName	CityID	UnilD
101	MUSONDA	SALIMU	2	1
102	ELIAH	MUSETEKA	1	2
103	ANDREW	CHIZIBA	4	5
104	FI IAS	MWFFMRA	9	6

StudID	FName	LName	CityID	UnilD
101	MUSONDA	SALIMU	2	1
102	ELIAH	MUSETEKA	1	2
103	ANDREW	CHIZIBA	4	5
104	ELIAS	MWEEMBA	9	6

UnilD	UName	UAdd
1	Kursk State	radishova 26
2	rudn	yugo zapadnaya
3	belgorod state	pabyedi 85
4	kazan state	pabyedi 20
5	Tula state	lenina 35

☒ Cities and Students

 CityID

 CityName

100 ID

☐ Unis and Students

Рисунок 3 – Тестирование запроса на удаление

Тестирование запроса на выборку представлено на рисунке 4.

Form1

CityID	CityName
1	MOSCOW
2	KURSK
3	BELGOROD
4	TULA
5	OREL
6	PETROZAVODSK

StudID	FName	LName	CityID	UnilD
101	MUSONDA	SALIMU	2	1
102	ELIAH	MUSETEKA	1	2
103	ANDREW	CHIZIBA	4	5
104	FI IAS	MWFFMRA	9	6

StudID	FName	LName	CityID	UnilD
102	ELIAH	MUSETEKA	1	2

UnilD	UName	UAdd
1	Kursk State	radishova 26
2	rudn	yugo zapadnaya
3	belgorod state	pabyedi 85
4	kazan state	pabyedi 20
5	Tula state	lenina 35

☒ Cities and Students

 CityID

 CityName

MOSCOW ID

THE TOTAL NUMBER OF STUDENTS IN MOSCOW IS : 1

☐ Unis and Students

Рисунок 4 – Тестирование запроса на выборку