

Laboratory 1

4 labs to present

L1: receive: Lab 1 (S1/S2)

Present: Lab 3 (S5/S6)

L2: receive: Lab 3 (S5/S6)

Present: Lab 4 (S7/S8)

L3: receive: Lab 4 (S7/S8)

Present: Lab 6 (S11/S12)

Practical Exam: Lab 7 (S13/S14)

Connection between SQL SERVER – VISUAL STUDIO (C#) – through a WINDOWS FORMS APPLICATION / WINDOWS FORMS APP (.NET FRAMEWORK)

We consider the following database

Object Explorer

Database Diagrams

dbo.Diagram_0

Tables

System Tables

FileTables

dbo.Client

Columns

Cid (PK, int, not null)

Name (varchar(50), null)

Gender (varchar(50), null)

Dob (date, null)

Keys

Constraints

Triggers

Indexes

Statistics

dbo.Product

Columns

Pid (PK, int, not null)

PName (varchar(50), null)

Quantity (int, null)

Price (float, null)

Cid (FK, int, not null)

Keys

Constraints

Triggers

Indexes

Statistics

Client

Cid

Name

Gender

Dob

Product

Pid

PName

Quantity

Price

Cid

use Lab1C

```
select * from Client
select * from Product
```

Results

| | Cid | Name | Gender | Dob |
|---|------|----------|--------|------------|
| 1 | 1 | Name | Gender | 1900-01-01 |
| 2 | 2 | Client 2 | f | 2000-02-03 |
| 3 | 3 | Client 3 | f | 1980-05-16 |
| 4 | 4 | Client 4 | m | 1896-11-08 |
| 5 | 5 | Client 5 | m | 1999-06-14 |
| 6 | 18 | alin | m | 1989-12-11 |
| 7 | 1018 | Maria55 | female | 2010-12-12 |
| 8 | 1019 | 6 | i | 2010-12-12 |

| | Pid | PName | Quantity | Price | Cid |
|---|-----|-----------|----------|-------|-----|
| 1 | 4 | lemon | 5 | 5 | 2 |
| 2 | 6 | chocolate | 5 | 3.5 | 4 |
| 3 | 7 | ice cream | 2 | 8 | 3 |
| 4 | 15 | Miere | 2 | 23 | 2 |
| 5 | 16 | Cartofi | 420 | 10 | 3 |
| 6 | 17 | Flori | 3 | 10 | 3 |
| 7 | 18 | tiramisu | 1 | 12 | 3 |

Query executed successfully.

Client- parent table

Product – child table

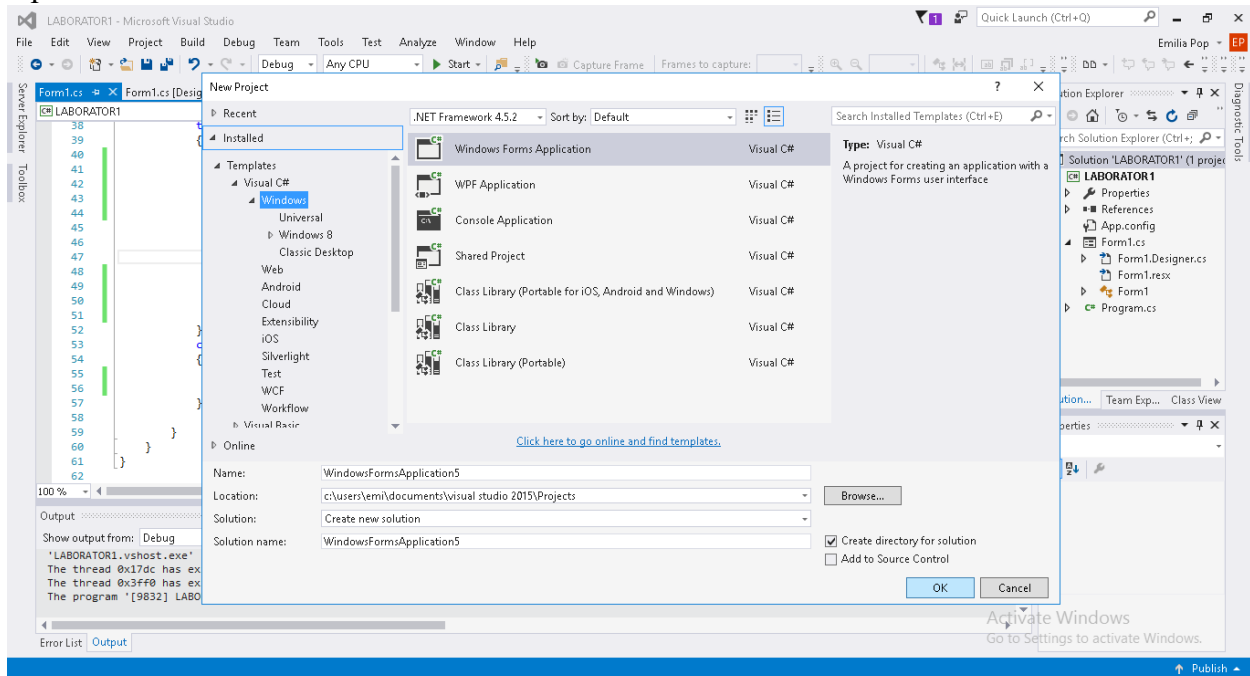
1. Display all parent records
`SELECT * FROM Client`
2. Selecting a parent record, it must display its child records
`SELECT * FROM Product WHERE Cid=...` (the one that is selected from the list of the clients)
3. Selecting a child record, it must allow to remove or update the data of the child
`DELETE FROM Product WHERE Pid=...` (the one that is selected)
`UPDATE Product SET PName=@p, Quantity=@q, Price=@pr, Cid=...` (preferable a list of clients from where to choose) `WHERE Pid = ...` (the one that is selected)

4. Selecting a parent record, it must allow to add a new child record
 INSERT INTO Product(PName, Quantity, Price, Cid) VALUES (@pname, @q, @p, ...)

The values that have to be introduced can be taken from TextBox-es.

| | |
|--|------------------------------|
| SQL SERVER ----- | VISUAL STUDIO (C#) |
| (tables (rows, columns, constraints) + relationships) | (DataAdapter) (DataSet) |

Example:



SELECT - use the method Fill()
 INSERT, UPDATE, DELETE – use the method ExecuteNonQuery()

[
 Package to import: Microsoft.Data.SqlClient (from Tool menu -> get packages -> import ...) +
 TrustServerCertificate=true (in connection string)

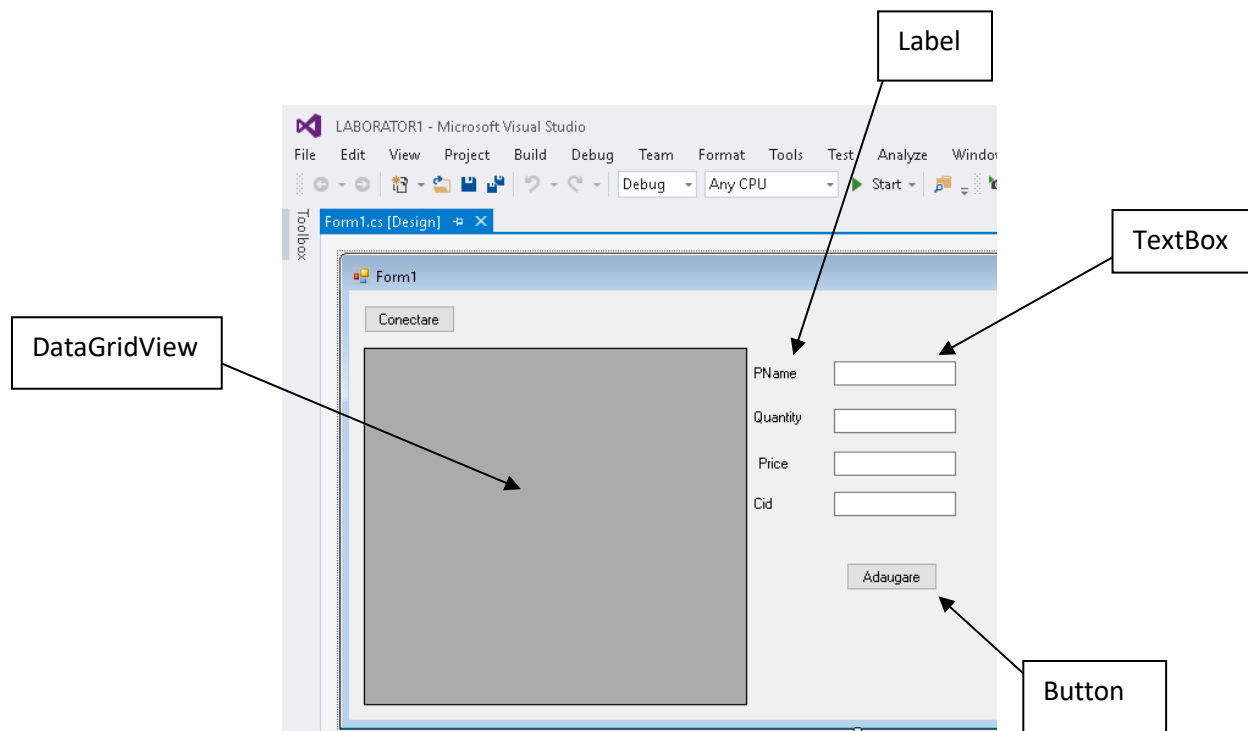
```
SqlConnection connectionstring = new SqlConnection(@"Data Source=DESKTOP-ATJN5FL\SQLEXPRESS;Initial Catalog=Lab1C;Integrated Security=True;TrustServerCertificate=true;");
```

Data Source = SERVER NAME (from SQL Server – on connection)

Initial Catalog = DATABASE NAME (recommended, one word - from SQL Server)

Integrated Security = True - correspond to WINDOWS AUTHENTICATION (from SQL Server – on connection) – or [USER ID = ... PASSWORD = ... to SQL Server Authentication with user and pass]

+ using System.Data.SqlClient; (in the source code)



```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows.Forms;
using System.Data.SqlClient;
```

```
namespace LABORATOR1
{
    public partial class Form1 : Form
    {
```

```
        SqlConnection cs = new SqlConnection("Data Source=DESKTOP-
        ATJN5FL\\SQLEXPRESS;Initial Catalog=Lab1C;Integrated Security=True");
        SqlDataAdapter da = new SqlDataAdapter();
        DataSet ds = new DataSet();
```

```
    public Form1()
    {
        InitializeComponent();
    }
```

```
    private void button1_Click(object sender, EventArgs e)
    {
        da.SelectCommand = new SqlCommand("SELECT * FROM Product", cs);
        ds.Clear();
        da.Fill(ds);
        dataGridView1.DataSource = ds.Tables[0];
    }
```

```

    }

    private void button2_Click(object sender, EventArgs e)
    {
        try
        {
            da.InsertCommand = new SqlCommand("INSERT INTO Product (PName, Quantity, Price,
Cid) VALUES(@p,@q, @pr, @c)", cs);
            da.InsertCommand.Parameters.Add("@p", SqlDbType.VarChar).Value = textBox1.Text;
            da.InsertCommand.Parameters.Add("@q", SqlDbType.Int).Value =
Int32.Parse(textBox2.Text);
            da.InsertCommand.Parameters.Add("@pr", SqlDbType.Int).Value =
Int32.Parse(textBox3.Text);
            da.InsertCommand.Parameters.Add("@c", SqlDbType.Int).Value =
Int32.Parse(textBox4.Text);
            cs.Open();
            da.InsertCommand.ExecuteNonQuery();
            MessageBox.Show("Inserted Succesfull to the Database");
            cs.Close();
            // already inserted - appear in the list
            da.Fill(ds);
            dataGridView1.DataSource = ds.Tables[0];
        }
        catch (Exception ex)
        {
            MessageBox.Show(ex.Message);
            cs.Close();
        }
    }
}
}
}

```

The screenshot shows a Windows application window titled "Form1". Inside the window, there is a button labeled "Conectare" at the top left. Below it is a data grid with 4 columns: "Pid", "PName", "Quantity", and an unlabeled column. The grid contains 9 rows of data. The second row is highlighted in blue. To the right of the grid are four input fields labeled "PName", "Quantity", "Price", and "Cid". At the bottom right of the window is a button labeled "Adaugare".

| Pid | PName | Quantity | |
|-----|------------|----------|--|
| 2 | cheese | 3 | |
| 3 | orange | 4 | |
| 4 | lemon | 5 | |
| 5 | grapes red | 12 | |
| 6 | chocolate | 5 | |
| 7 | ice cream | 2 | |
| 8 | flower | 5 | |
| 9 | orange | 1 | |

Form1

Conectare

| Pid | PName | Quantity |
|-----|------------|----------|
| 5 | grapes red | 12 |
| 6 | chocolate | 5 |
| 7 | ice cream | 2 |
| 8 | flower | 5 |
| 9 | orange | 1 |
| 11 | a | 1 |
| 12 | t | 2 |
| * | | |

PName

tiramisu

Quantity

4

Price

12

Cid

3

Adaugare

Price, Cid)

1.Text;

(textBox2.Te

e(textBox3.T

textBox4.Text

Inserted Succesfull to the Database

OK

Form1

Conectare

| Pid | PName | Quantity |
|-----|-----------|----------|
| 6 | chocolate | 5 |
| 7 | ice cream | 2 |
| 8 | flower | 5 |
| 9 | orange | 1 |
| 11 | a | 1 |
| 12 | t | 2 |
| 13 | tiramisu | 4 |
| * | | |

PName

tiramisu

Quantity

4

Price

12

Cid

3

Adaugare