

## Code

```
Design T-SQL
CREATE TABLE [dbo].[Faculties] (
    [Id] INT IDENTITY (1, 1) NOT NULL,
    [Code] INT NOT NULL,
    [Name] TEXT NOT NULL,
    CONSTRAINT [FK_Faculties_ToUniversities]
        FOREIGN KEY ([Code]) REFERENCES [dbo].[Universities] ([Code])
        ON UPDATE CASCADE
);

Design T-SQL
CREATE TABLE [dbo].[Universities] (
    [Id] INT IDENTITY (1, 1) NOT NULL,
    [Name] TEXT NOT NULL,
    [City] TEXT NOT NULL,
    [Code] INT NOT NULL,
    CONSTRAINT [PK_Universities] PRIMARY KEY CLUSTERED ([Code] ASC)
);

using System;
using System.Data;
using System.Data.SqlClient;
using System.Windows.Forms;

namespace Lab2
{
    3 references
    public partial class Form1 : Form
    {
        SqlConnection myCon = new SqlConnection();
        DataSet dsUniv;
        DataSet dsFac;

        1 reference
        public Form1()
        {
            InitializeComponent();
            myCon.ConnectionString = Properties.Settings.Default.DatabaseConnectionString;

            dsUniv = new DataSet();
            dsFac = new DataSet();

            updateDataSet();
        }

        1 reference
        private void listBox_Univ_SelectedIndexChanged(object sender, EventArgs e)
        {
            listFaculties.Items.Clear();

            int code = 0;
            if(listUniversities.SelectedItem != null)
            {
                String UnivSelected = listUniversities.SelectedItem.ToString();
                foreach (DataRow dr in dsUniv.Tables["Universities"].Rows)
                {
                    if (UnivSelected == $"{dr.ItemArray.GetValue(1)} [ID: {dr.ItemArray.GetValue(0)}]")
                    {
                        cityTextBox.Text = dr.ItemArray.GetValue(2).ToString();
                        code = Convert.ToInt16(dr.ItemArray.GetValue(3));
                        codeTextBox.Text = code.ToString();
                    }
                }
            }
        }
    }
}
```

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        code = Convert.ToInt16(dr.ItemArray.GetValue(9));
        codeTextBox.Text = code.ToString();
    }
}
foreach (DataRow dr in dsFac.Tables["Faculties"].Rows)
{
    if (code == Convert.ToInt16(dr.ItemArray.GetValue(1)))
    {
        String nameFac = dr.ItemArray.GetValue(2).ToString();
        listFaculties.Items.Add(nameFac);
    }
}
}
}

```

4 references

```

private void updateDataSet()
{
    listFaculties.Items.Clear();
    listUniversities.Items.Clear();
    dsUniv.Clear();
    dsFac.Clear();

    cityTextBox.Text = "";
    codeTextBox.Text = "";

    try
    {
        myCon.Open();

        SqlDataAdapter daUniv = new SqlDataAdapter("SELECT * FROM Universities", myCon);
        daUniv.Fill(dsUniv, "Universities");
        SqlDataAdapter daFac = new SqlDataAdapter("SELECT * FROM Faculties", myCon);
        daFac.Fill(dsFac, "Faculties");

        foreach (DataRow dr in dsUniv.Tables["Universities"].Rows)
        {
            String name = $"{dr.ItemArray.GetValue(1)} [ID: {dr.ItemArray.GetValue(0)}]";
            listUniversities.Items.Add(name);
        }

        myCon.Close();
    }
}

```

```

        myCon.Close();
    }
    catch
    {
        MessageBox.Show("Couldn't update data set!");
    }

    facultiesTableAdapter.Fill(databaseDataSet.Faculties);
}

1 reference
private void add_Button_Click(object sender, EventArgs e)
{
    try
    {
        String name = add_Name_TextBox.Text;
        String city = add_City_TextBox.Text;
        Int32 code = Int32.Parse(add_Code_TextBox.Text);

        myCon.Open();
        string sql = $"INSERT INTO [Universities] (Name, City, Code) VALUES (@name, @city, @code)";

        using (SqlCommand command = new SqlCommand(sql, myCon))
        {
            command.Parameters.AddWithValue("@name", name);
            command.Parameters.AddWithValue("@city", city);
            command.Parameters.AddWithValue("@code", code);

            command.ExecuteNonQuery();
        }
        myCon.Close();
    }
    catch (Exception ex)
    {
        Console.WriteLine(ex.Message);
    }

    updateDataSet();
}

```

```

        updateDataSet();
    }

    1 reference
    private void delete_Button_Click(object sender, EventArgs e)
    {
        String ID = delete_ID_TextBox.Text;

        try
        {
            myCon.Open();

            String deleteQuery = "DELETE FROM Faculties WHERE Id = @Id";

            using (SqlCommand cmd = new SqlCommand(deleteQuery, myCon))
            {
                cmd.Parameters.AddWithValue("@Id", ID);
                int affected = cmd.ExecuteNonQuery();
            }

            deleteQuery = "DELETE FROM Universities WHERE Id = @Id";

            using (SqlCommand cmd = new SqlCommand(deleteQuery, myCon))
            {
                cmd.Parameters.AddWithValue("@Id", ID);
                int affected = cmd.ExecuteNonQuery();
            }

            myCon.Close();
        }
        catch (Exception ex)
        {
            Console.Write(ex.Message);
        }

        updateDataSet();
    }

```

```

    1 reference
    private void update_Button_Click(object sender, EventArgs e)
    {
        try

```

```

        updateDataSet();
    }

    1 reference
    private void update_Button_Click(object sender, EventArgs e)
    {
        try
        {
            String ID = update_ID_TextBox.Text;
            String name = update_Name_TextBox.Text;
            String city = update_City_TextBox.Text;
            Int32 code = Int32.Parse(update_Code_TextBox.Text);

            myCon.Open();

            String sql = $"UPDATE Universities SET Name = @name, City = @city, code = @code WHERE Id = @id";

            using (SqlCommand command = new SqlCommand(sql, myCon))
            {
                command.Parameters.AddWithValue("@name", name);
                command.Parameters.AddWithValue("@city", city);
                command.Parameters.AddWithValue("@code", code);
                command.Parameters.AddWithValue("@id", ID);

                command.ExecuteNonQuery();
            }

            myCon.Close();
        }
        catch (Exception ex)
        {
            Console.WriteLine(ex.Message);
        }

        updateDataSet();
    }
}

```

## Result

Form1

DB Exemple

Universities

Babes [ID: 2]  
UTCN [ID: 1]  
Add [ID: 4]  
Dunarea University [ID: 3]

Faculties

Automation  
Rocket Science

City  
Cluj-Napoca

Code  
1000

Add University

Name

City

Code

Add

Delete University

ID

Delete

Update University

ID

Name

City

Code

Update

	Id	Code
▶	1	1000
	2	1000

Form1

DB Exemple

Universities

Babes [ID: 2]

Test [ID: 5]

UTCN [ID: 1]

Add [ID: 4]

Dunarea University [ID: 3]

Faculties

City

Test

Code

44

Add University

Name

Test

City

Test

Code

44

Add

Delete University

ID

Delete

Update University

ID

Name

City

Code

Update

	Id	Code
▶	1	1000
	2	1000

Form1

DB Exemple

Universities

Babes [ID: 2]  
Test [ID: 5]  
UTCN [ID: 1]  
Dunarea University [ID: 3]

Faculties

City

Code

Add University

Name

City

Code

Add

Delete University

ID

4

Delete

Update University

ID

Name

City

Code

Update

	Id	Code
▶	1	1000
	2	1000





Form1



### DB Exemple

#### Universities

Test [ID: 5]  
UTCN [ID: 1]  
Babes-Bolyai [ID: 2]  
Dunarea University [ID: 3]

#### Faculties

City

Cluj-Napoca

Code

2567

#### Add University

Name

City

Code

Add

#### Delete University

ID

Delete

#### Update University

ID

Name

abes-Bolyai

City

Cluj-Napoca

Code

2567

Update

	Id	Code
▶	1	1000
	2	1000