

**Solution Lab 2 – on DataGridView**

SQL Server:

-- 1-n: Groups-Students

```
create table Groups(
Gid int primary key,
NoOfStudents int,
LeaderName varchar(50))
```

```
create table Students(
Sid int primary key identity,
SName varchar(50),
SSurname varchar(50),
Gender varchar(20),
Dob date,
Gid int foreign key references Groups(Gid))
```

```
insert into Groups values (923, 28, 'Andrei'), (925, 29, 'Alina'), (921, 30, 'Dan'), (927, 29, 'Mihaela')
insert into Students values ('Paul', 'Damian', 'male', '12/11/2000', 923), ('Paula', 'Maria', 'female', '02/01/2001', 923), ('Cristi', 'Suciu', 'male', '07/11/2000', 927), ('Daniel', 'Irina', 'female', '04/01/2000', 925), ('Claudiu', 'Mihalache', 'male', '07/11/2001', 921)
```

```
select * from Groups
select * from Students
```

-- 1-n: CoursesTypes-Courses

```
create table CoursesTypes(
Tid int primary key identity,
Type varchar(50),
Specialization varchar(50))
```

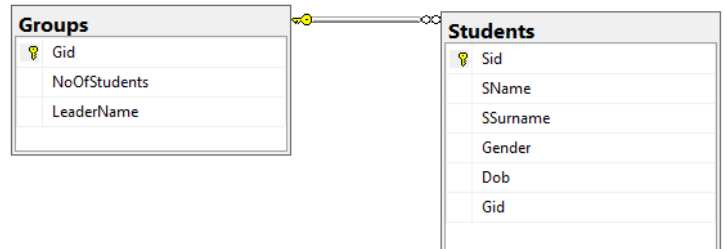
```
create table Courses(
Cid varchar(20) primary key,
CName varchar(50),
Credits int,
Semester int,
Tid int foreign key references CoursesTypes(Tid))
```

```
insert into CoursesTypes values ('mandatory', 'CS'), ('mandatory', 'MCS'), ('optional', 'CS'), ('optional', 'IR')
insert into Courses values ('MO9893', 'Databases', 6, 3, 1), ('MJ0574', 'Database Management Systems', 4, 4, 1), ('MO9783', 'SGBD', 4, 4, 4), ('MI6793', 'DB', 6, 3, 3)
```

```
select * from CoursesTypes
select * from Courses
```

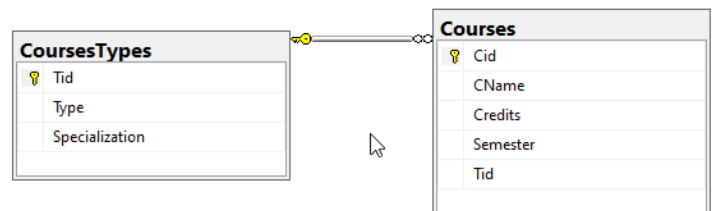
	Gid	NoOfStudents	LeaderName
1	921	30	Dan
2	923	28	Andrei
3	925	29	Alina
4	927	29	Mihaela

	Sid	SName	SSurname	Gender	Dob	Gid
1	5	Paul	Damian	male	2000-12-11	923
2	6	Paula	Maria	female	2001-02-01	923
3	7	Cristi	Suciu	male	2000-07-11	927
4	8	Daniel	Irina	female	2000-04-01	925
5	9	Claudiu	Mihalache	male	2001-07-11	921



	Tid	Type	Specialization
1	1	mandatory	CS
2	2	mandatory	MCS
3	3	optional	CS
4	4	optional	IR

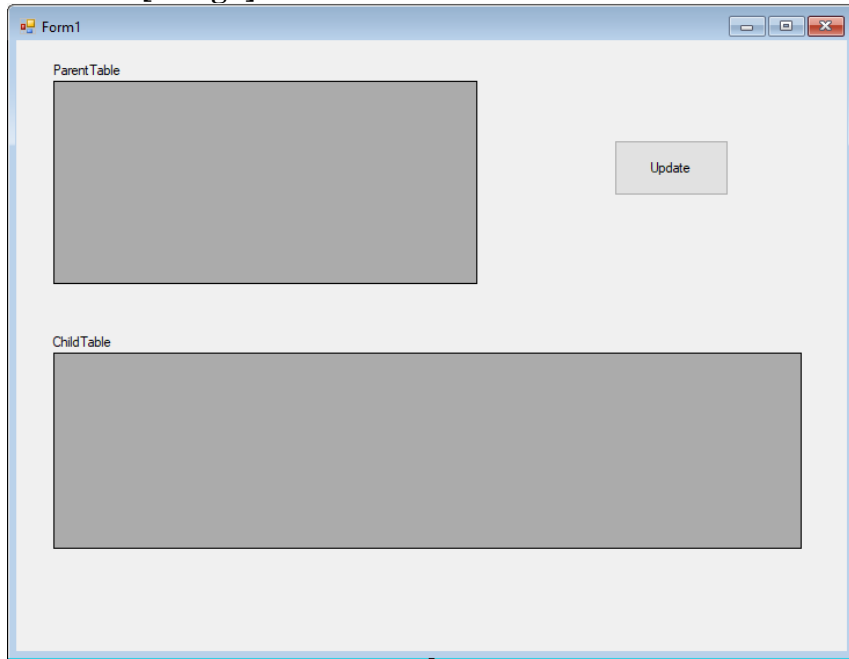
	Cid	CName	Credits	Semester	Tid
1	MI6793	DB	6	3	3
2	MJ0574	Database Management Systems	4	4	1
3	MO9783	SGBD	4	4	4
4	MO9893	Databases	6	3	1



**This is just an example. If you choose this option to solve your problem, you must explain every step that is perform in DataGridView. Also, you should be able to make one modification in the child table (INSERT, UPDATE, DELETE) and then save it; BUT also, to make multiple modifications in the child table (for example, 2 insert's, 3 update's, 1 delete) and then save them.**

Application:

### Form1.cs [Design]



**App.config** - prepare the both senarios (one active and one commented)

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <connectionStrings>
    <add name="cn" connectionString="Data Source=DESKTOP-VB4PGBM\SQLEXPRESS;Initial
Catalog=Lab1C;Integrated Security=True" providerName="System.Data.SqlClient" />
  </connectionStrings>

  <startup>
    <supportedRuntime version="v4.0" sku=".NETFramework,Version=v4.5.2" />
  </startup>

  <appSettings>
    <add key="parentTable" value="Groups"/>
    <add key="parentPrimaryKey" value="Gid"/>
    <add key="childTable" value="Students"/>
    <add key="childForeignKey" value="Gid"/>
    <add key="server" value="DESKTOP-VB4PGBM\SQLEXPRESS"/>
    <add key="database" value="Lab2_CS_DGV"/>
  </appSettings>

  <!--
  <appSettings>
    <add key="parentTable" value="CoursesTypes"/>
```

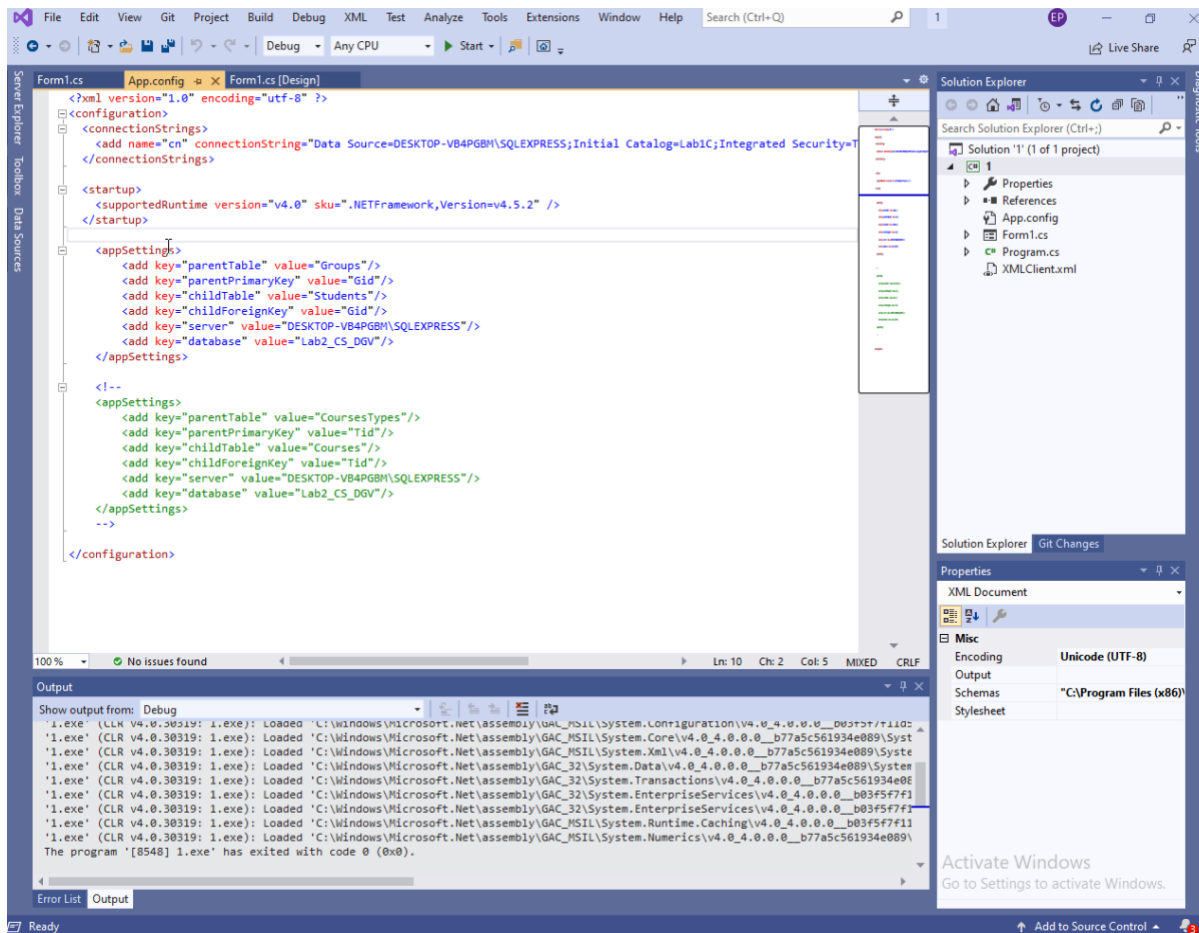
```

<add key="parentPrimaryKey" value="Tid"/>
<add key="childTable" value="Courses"/>
<add key="childForeignKey" value="Tid"/>
<add key="server" value="DESKTOP-VB4PGBM\SQLEXPRESS"/>
<add key="database" value="Lab2_CS_DGV"/>

</appSettings>

-->
</configuration>

```



### Form1.cs

```

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

```

```

namespace _1
{
    public partial class Form1 : Form
    {
        public static string server = ConfigurationManager.AppSettings.Get("server");
        public static string database = ConfigurationManager.AppSettings.Get("database");
        public static string parentTable = ConfigurationManager.AppSettings.Get("parentTable");
        public static string childTable = ConfigurationManager.AppSettings.Get("childTable");
        public static string parentPrimaryKey = ConfigurationManager.AppSettings.Get("parentPrimaryKey");
        public static string childForeignKey = ConfigurationManager.AppSettings.Get("childForeignKey");

        // SqlConnection sqlConnection = new SqlConnection(@"Data Source=DESKTOP-
        VB4PGBM\SQLEXPRESS; Initial Catalog=Lab2_CS_DGV; Integrated Security=True");
        SqlConnection sqlConnection = new SqlConnection("Data Source=" + server + ";Database=" + database +
        ";Integrated Security=SSPI");

        DataSet dataSet = new DataSet();

        SqlDataAdapter parentDataAdapter = new SqlDataAdapter();
        SqlDataAdapter childDataAdapter = new SqlDataAdapter();

        BindingSource parentBindingSource = new BindingSource();
        BindingSource childBindingSource = new BindingSource();

        SqlCommandBuilder parentBuilder = new SqlCommandBuilder();
        SqlCommandBuilder childBuilder = new SqlCommandBuilder();

        public Form1()
        {
            InitializeComponent();
        }

        public void populate()
        {
            parentDataAdapter = new SqlDataAdapter("SELECT * FROM " + parentTable, sqlConnection);
            childDataAdapter = new SqlDataAdapter("SELECT * FROM " + childTable, sqlConnection);

            SqlCommandBuilder parentBuilder = new SqlCommandBuilder(parentDataAdapter);
            SqlCommandBuilder childBuilder = new SqlCommandBuilder(childDataAdapter);

            // dataSet.Clear();
            parentDataAdapter.Fill(dataSet, parentTable);
            childDataAdapter.Fill(dataSet, childTable);

            DataColumn parentPK = dataSet.Tables[parentTable].Columns[parentPrimaryKey];
            DataColumn childFK = dataSet.Tables[childTable].Columns[childForeignKey];

            DataRelation relation = new DataRelation("fk_parent_child", parentPK, childFK);
            dataSet.Relations.Add(relation);
        }
    }
}

```

```

parentBindingSource.DataSource = dataSet;
parentBindingSource.DataMember = parentTable;

childBindingSource.DataSource = parentBindingSource;
childBindingSource.DataMember = "fk_parent_child";

parentDGV.DataSource = parentBindingSource;
childDGV.DataSource = childBindingSource;
}

private void Form1_Load(object sender, EventArgs e)
{
    populate();
}

private void button1_Click(object sender, EventArgs e)
{
    try
    {
        parentDataAdapter.Update(dataSet, parentTable);
        childDataAdapter.Update(dataSet, childTable);
        MessageBox.Show("Updated with succes!");
        // populate();
    }
    catch (Exception ex)
    {
        MessageBox.Show(ex.Message);
        sqlConnection.Close();
    }
}
}
}

```

**Execution:*****Relation 1:***

The screenshot shows a Windows application window titled "Form1". Inside the window, there are two data grids and an "Update" button.

**ParentTable**

Gid	NoOfStudents	LeaderName
921	30	Dan
923	28	Andrei
925	29	Alina
927	29	Mihaela
*		

**ChildTable**

Sid	SName	SSurname	Gender	Dob	Gid
9	Claudiu	Mihalache	male	7/11/2001	921
12	we	are	sds	5/6/2000	921
*					

An "Update" button is located to the right of the ParentTable grid.



## Add

The following exception occurred in the DataGridView:

```
System.FormatException: Input string was not in a correct format.
   at System.Number.StringToNumber(String str, NumberStyles options, NumberBuffer& number, NumberFormatInfo info, Boolean parseDecimal)
   at System.Number.ParseInt32(String s, NumberStyles style, NumberFormatInfo info)
   at System.Int32.Parse(String s, NumberStyles style, IFormatProvider provider)
   at End of inner exception stack trace ---
   at System.Windows.Forms.Formatter.InvokeStringParseMethod(Object value, Type targetType, IFormatProvider formatInfo)
   at System.Windows.Forms.Formatter.ParseObjectInternal(Object value, Type targetType, Type sourceType, TypeConverter targetConverter, TypeConverter sourceConverter, IFormatProvider formatInfo, Object formattedValue)
   at System.Windows.Forms.Formatter.ParseObject(Object value, Type targetType, Type sourceType, TypeConverter targetConverter, TypeConverter sourceConverter, IFormatProvider formatInfo, Object formattedValue, Object dataSourceNullValue)
   at System.Windows.Forms.DataGridViewCell.ParseFormattedValueInternal(Type valueType, Object formattedValue, DataGridViewCellStyle cellStyle, TypeConverter formattedValueTypeConverter, TypeConverter valueTypeConverter)
   at System.Windows.Forms.DataGridViewCell.ParseFormattedValue(Object formattedValue, DataGridViewCellStyle cellStyle, TypeConverter formattedValueTypeConverter, TypeConverter valueTypeConverter)
   at System.Windows.Forms.DataGridView.PushFormattedValue(DataGridViewCell, DataGridViewCurrentCell, Object formattedValue, Exception& exception)
```

Updated with succes!

## Update

Updated with succes!

## Delete

Updated with succes!