

Lab 5: One-Many Relationship with WinForm

Use the following script to create a Company Database, **Create your database**: use the following code:

```
CREATE DATABASE Company ON PRIMARY
( NAME = 'Company',
  FILENAME = 'E:\DATA\Company.mdf' ,
  SIZE = 4096KB , MAXSIZE = UNLIMITED, FILEGROWTH = 1024KB )
LOG ON
( NAME = 'Company_log',
  FILENAME = 'E:\DATA\Company_log.ldf' ,
  SIZE = 1024KB , MAXSIZE = 2048KB , FILEGROWTH = 10%)
```

Run the Script provided to create data tables.

Exer1: Make a Form (One-Many) (Main-Sub) (Parent-Child) between table Department and Employee

DName	DNumber	Mgrsn	MgrStartDate
Headquarters	1	888665555	1971-06-19 00:00:00.000
Administration	4	987654321	1985-01-01 00:00:00.000
Research	5	333445555	1978-05-22 00:00:00.000

FName	Minit	LName	SSN	BDate	Address	Sex	Salary	SuperSSN	DNo
John	B	Smith	123456789	1955-01-09 00:00:00.000	Houston TX	M	30000.00	333445555	5
Franklin	T	Wong	333445555	1945-12-08 00:00:00.000	Houston TX	M	40000.00	888665555	5
Joyce	A	English	453453453	1962-07-31 00:00:00.000	Houston TX	F	25000.00	333445555	5
Ramesh	K	Narayan	666884444	1952-09-15 00:00:00.000	Humble TX	M	38000.00	333445555	5
James	E	Borg	888665555	1927-11-10 00:00:00.000	Houston TX	M	55000.00	NULL	1
Jennifer	S	Wallace	987654321	1931-06-20 00:00:00.000	Bellaire TX	F	43000.00	888665555	4
Ahmad	V	Jabbar	987987987	1959-03-29 00:00:00.000	Houston TX	M	25000.00	987654321	4
Alicia	J	Zelaya	999887777	1958-07-19 00:00:00.000	Spring TX	F	25000.00	987654321	4

Create a Form to query employee from each Department (**1 combo box + DataGridView**)

FName	Minit	LName	SSN	BDate	Address	Sex	Salary	SuperSSN
John	B	Smith	123456789	09/01/1955	Houston TX	M	30000.00	333445555
Franklin	T	Wong	333445555	08/12/1945	Houston TX	M	40000.00	888665555
Joyce	A	English	453453453	31/07/1962	Houston TX	F	25000.00	333445555
Ramesh	K	Narayan	666884444	15/09/1952	Humble TX	M	38000.00	333445555

Combo box name: **comboBoxDepartment** , DataGridView name: **dataGridViewEmployee**

Double click on :  **frmEmployee**

to open Code Edit

(See below for Exer1 guideline)

Exer2: The same with Exer1, but Form to query Dependent for each Employee.

Exer3: Allow to add new data to grid and save back to Database for both Exer1 & Exer2.

Below is a guideline:

Exer1:

```
public partial class frmEmployee : Form
{
    //Read connection from App.config
    //String strConn = ConfigurationManager.ConnectionStrings["MyConn"].ConnectionString;
    SqlConnection conn = new SqlConnection(ConfigurationManager.ConnectionStrings["MyConn"].ConnectionString);
    0 references | ptktung, 104 days ago | 1 author, 1 change
    public frmEmployee()
    {
        InitializeComponent();
    }

    1 reference | ptktung, 104 days ago | 1 author, 1 change
    private void frmEmployee_Load(object sender, EventArgs e)
    {
        //SqlConnection conn = new SqlConnection(strConn);
        //conn.Open();
        SqlCommand cmd = new SqlCommand("SELECT * FROM Department", conn);
        SqlDataAdapter adapter = new SqlDataAdapter(cmd);

        DataTable dt = new DataTable();
        adapter.Fill(dt);
        if (dt.Rows.Count > 0)
        {
            //MessageBox.Show("Fill success Welcome");
            //dataGridViewEmployee.DataSource = dt;
            comboBoxDepartment.DataSource = dt;
            comboBoxDepartment.DisplayMember = "DName";
            comboBoxDepartment.ValueMember = "DNumber";
            LoadData();
            //gridStudents.Refresh();
        }
        else
        {
            MessageBox.Show("No Data");
        }
        adapter.Dispose();
        //conn.Close();
    }

    private void comboBoxDepartment_SelectedIndexChanged(object sender, EventArgs e)
    {
        LoadData();
    }
    2 references | ptktung, 104 days ago | 1 author, 1 change
    private void LoadData()
    {
        try
        {
            SqlCommand cmd = new SqlCommand("SELECT * FROM Employee where DNo=" + comboBoxDepartment.SelectedValue, conn);
            SqlDataAdapter adapter = new SqlDataAdapter(cmd);

            DataTable dt = new DataTable();
            adapter.Fill(dt);
            if (dt.Rows.Count > 0)
            {
                //MessageBox.Show("Fill success Welcome");
                dataGridViewEmployee.DataSource = dt;
            }
            else
            {
                MessageBox.Show("No Data");
            }
            adapter.Dispose();
        }
        catch (Exception)
        {
            //MessageBox.Show("Error:" + ex.Message + "-" + ex.Source);
        }
    }
}
```

1. Form (Main-Sub / Parent-Child)

SE Lab taught by P.T.K.Trung

Company Lab (One Many Relationship) VS + MSSQL

frmDeptEmp

DataGridViewDepartment

	DName	DNumber	Mgrssn	Mgrstartdate
	Headquarters	1	888665555	19/06/1971
	Administration	4	987654321	01/01/1985
▶	Research	5	333445555	22/05/1978
*				

	FName	MInit	LName	SSN	BDate	Address	Sex
▶	John	B	Smith	123456789	09/01/1955	Houston TX	M
	Franklin	T	Wong	333445555	08/12/1945	Houston TX	M
	Joyce	A	English	453453453	31/07/1962	Houston TX	F
	Ramesh	K	Narayan	666884444	15/09/1952	Humble TX	M
*							

DataGridViewEmployee

```

public partial class frmDeptEmp : Form
{
    SqlConnection conn = new SqlConnection(ConfigurationManager.ConnectionStrings["MyConn"].ConnectionString);
    1 reference | ptktrung, 104 days ago | 1 author, 1 change
    public frmDeptEmp()
    {
        InitializeComponent();
    }

    1 reference | ptktrung, 104 days ago | 1 author, 1 change
    private void frmDeptEmp_Load(object sender, EventArgs e)
    {
        SqlCommand cmd = new SqlCommand("SELECT * FROM Department", conn);
        SqlDataAdapter adapter = new SqlDataAdapter(cmd);

        DataTable dt = new DataTable();
        adapter.Fill(dt);
        if (dt.Rows.Count > 0)
        {
            //MessageBox.Show("Fill success Welcome");
            dataGridViewDepartment.DataSource = dt;
            //gridStudents.Refresh();
        }
        else
        {
            MessageBox.Show("No Data");
        }
        adapter.Dispose();
        LoadData();
    }
}

```

```

private void dataGridViewDepartment_CellContentClick(object sender, DataGridViewCellEventArgs e)
{
    //var selectOne = dataGridView1.SelectedRows[0].DataBoundItem as Person;
    //textBoxPersonID.Text = selectOne.PersonID.ToString();
    //var selectOne=dataGridViewDepartment.SelectedRows[0].DataBoundItem
    LoadData();
    dataGridViewDepartment.Refresh();
    dataGridViewEmployee.Refresh();
}

```

```

private void LoadData()
{
    try
    {
        //dataGridView1.SelectedRows[0].DataBoundItem
        //int idNo = dataGridViewDepartment.SelectedRows[0].DataBoundItem.DNo;
        int index = dataGridViewDepartment.SelectedCells[0].RowIndex;
        if (index < 0 || index >= dataGridViewDepartment.RowCount)
        {
            MessageBox.Show("Please select a department first");
            return;
        }

        DataGridViewRow row = dataGridViewDepartment.Rows[index];
        //Get DNumber from the dataGrid
        int idNo = int.Parse(row.Cells[1].Value.ToString());
        //String sDNo = row.Cells[1].Value.ToString();

        SqlCommand cmd = new SqlCommand("SELECT * FROM Employee where DNo=" + idNo, conn);
        SqlDataAdapter adapter = new SqlDataAdapter(cmd);

        DataTable dt = new DataTable();
        adapter.Fill(dt);
        if (dt.Rows.Count > 0)
        {
            // MessageBox.Show("Fill sucess Welcome");
            dataGridViewEmployee.DataSource = dt;
        }
        else
        {
            MessageBox.Show("No Data");
        }
        adapter.Dispose();
        dataGridViewEmployee.Refresh();
    }
    catch (Exception)
    {
        //MessageBox.Show("Error:" + ex.Message + "-" + ex.Source);
    }
}
}

```

Notes: Change of reading connection repeating on each form to global connection

```

static class Program
{
    public static string strConn=""; //declare global variable
    [STAThread]
    static void Main()
    {
        strConn = ConfigurationManager.ConnectionStrings["MyConn"].ConnectionString;

        SqlConnection conn = new SqlConnection(Program.strConn);
        conn.Open();
    }
}

```

Exer2: Should be same with Exer1

Exer3: Student is required to use Solution 1 to get credit tasks and solution 2 to get pass tasks

Solution 1: Count the new index for new rows, update new rows to the database.

Solution 2: Use OleDb to update a Binding source of datagridview back to database. Some codes FYI:

```
using System.Data.OleDb;
using System.Configuration;
public partial class Form1: Form
{
    OleDbCommand cmd;
    OleDbDataAdapter da;
    private BindingSource bindingSource = null;
    private OleDbCommandBuilder oleCommandBuilder = null;
    DataTable dt = new DataTable();
    //Read connection string from App.Config with name: MyConnOleDb
    String strConn = ConfigurationManager.ConnectionStrings["MyConnOleDb"].ConnectionString;
    public Form1()
    {
        InitializeComponent();
    }
    private void Form1_Load(object sender, EventArgs e)
    {
        DataBind();
    }
    private void btnSave_Click(object sender, EventArgs e)
    {
        dataGridView1.EndEdit(); //very important step
        try
        {
            da.Update(dt); //Update data back to Database
            MessageBox.Show("Updated");
            DataBind();
        }
        catch (Exception ex)
        {
            MessageBox.Show(ex.ToString(), "Error", MessageBoxButtons.OK, MessageBoxIcon.Error);
        }
    }
    private void DataBind()
    {
        dataGridView1.DataSource = null;
        dt.Clear();
        OleDbConnection conn = new OleDbConnection(strConn);
        conn.Open();
        String sSQL = "SELECT * FROM Employee";
        cmd = conn.CreateCommand();
        cmd.CommandText = sSQL;
        try
        {
```

```

        da = new OleDbDataAdapter(sSQL, conn);
        oleCommandBuilder = new OleDbCommandBuilder(da);
        da.Fill(dt);
        bindingSource = new BindingSource { DataSource = dt };
        dataGridView1.DataSource = bindingSource;
    }
    catch (Exception ex)
    {
        MessageBox.Show(ex.ToString(), "Error", MessageBoxButtons.OK, MessageBoxIcon.Error);
    }
    conn.Close();
}
}

```

App.Config

```

<connectionStrings>
  <add name="MyConn"
    connectionString="Data Source=(local)\SQL2017;Initial Catalog=SE.Lab.T5C3;;Integrated Security=True "
    providerName="System.Data.SqlClient"
  />
  <add name="MyConnOleDb"
    connectionString="Provider=sqloledb;Data Source=(local)\SQL2017;Initial Catalog=SE.Lab.T5C3;Integrated Security=SSPI "
    providerName="SQLOLEDB"
  />
</connectionStrings>

```

Enjoy ☺.

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