Informatics College Pokhara



Information Systems CS6004NP Coursework 1

Submitted By:

Student Name: Latika Gurung Student ID: NP04CP4A170053

Group: L3C2

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Submitted To:

Mr Ishwor Sapkota Module Leader

Application Development

Contents

1.	Introduction	1
1	1.1 Current Scenario	1
1	1.2 Proposed System	1
2.	User manual	2
3.	Journal Article	13
4.	Architecture Design	14
5.	Flow chart Report	16
6.	Sorting Algorithm	17
7.	Conclusion	19
8.	Bibliography	20
	Appendix	

Table of Figure

2
3
3
4
4
5
5
6
7
8
9
10
10
11
12
14
15
16
18

1. Introduction

The system is Student Information system. This system is designed to store information of students in advanced and better way. It is made after undergoing various test circumstances.

This application provides user to input the id, name, address, course enroll & registration date of the student and store in a table. It also shows the overall stored data Furthermore this system also provides facility to view weekly report, import csv sorting according to name and registration date and so on.

1.1 Current Scenario

There are various student information system which stores information about students. But they are lacking in providing special features which can be essential for the data storage.

1.2 Proposed System

The proposed system provides more features like importing csv, generating a weekly report, sorting by name and date. This system also provides proper security in the login form.

2. User manual

Below are the screenshots which will show how to use the system.

The user needs to input username and password and press the login button.

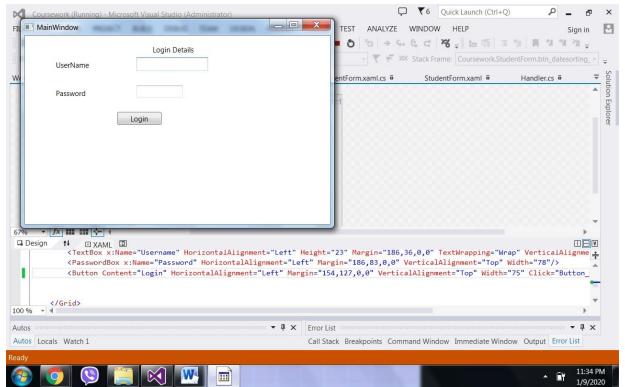


Figure 1

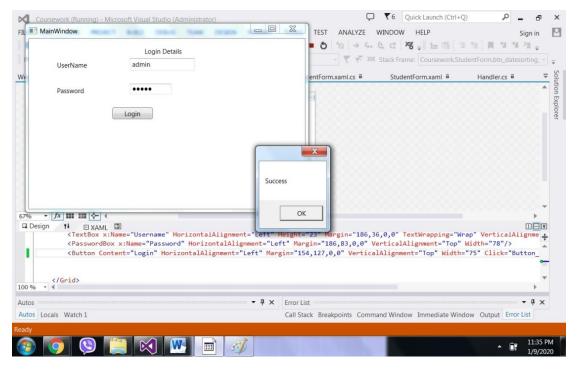


Figure 2

After the login, an alert box appears saying success.

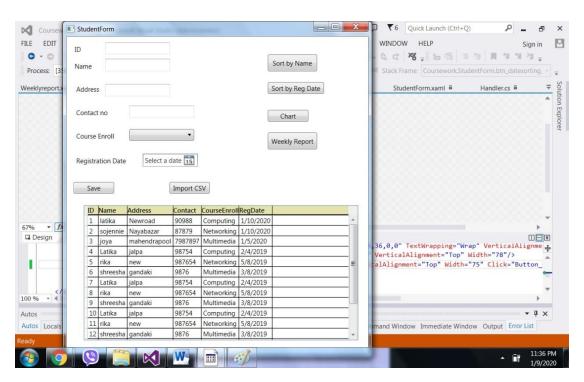


Figure 3

Then a login form appears in which user needs to enter data.

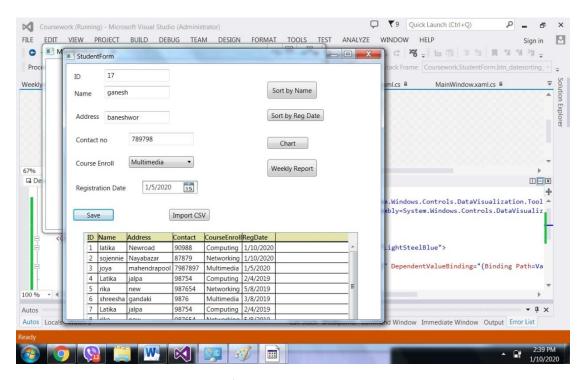


Figure 4

Then you enter all the information and fill it.

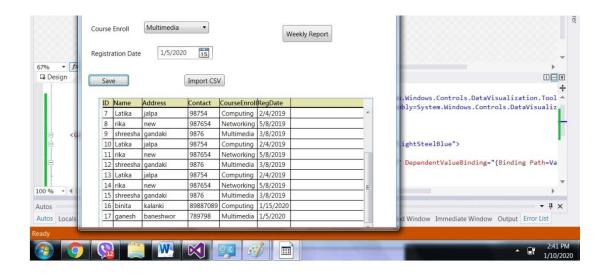


Figure 5

And the information is added on the table.

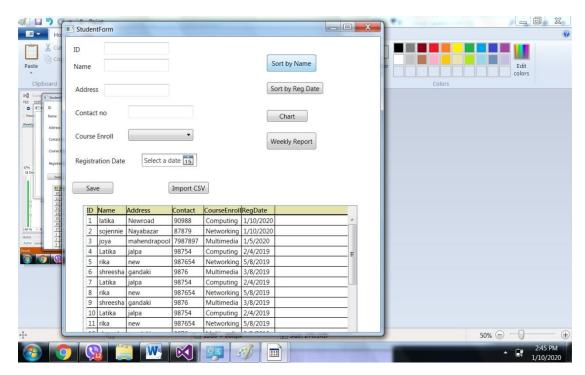


Figure 6

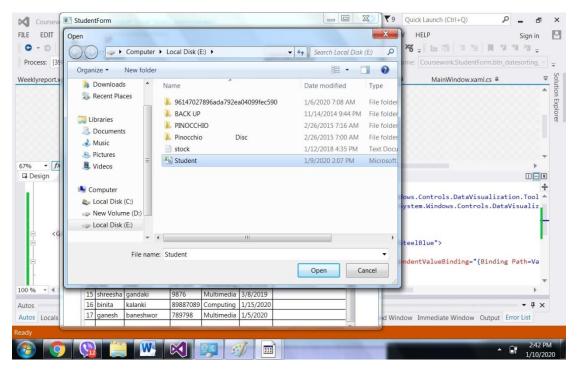


Figure 7

Latika Gurung

Click on the import CSV button. Then a folder opens where your student file is located which you have to add in excel.

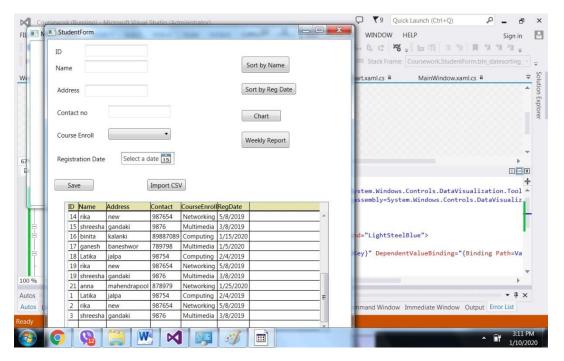


Figure 8

The information of the file is added in to the table.

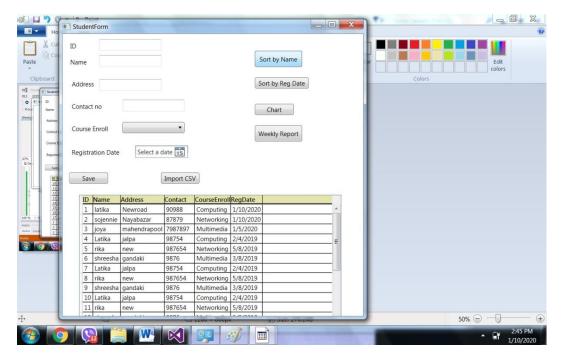


Figure 9

This is the unsorted table.

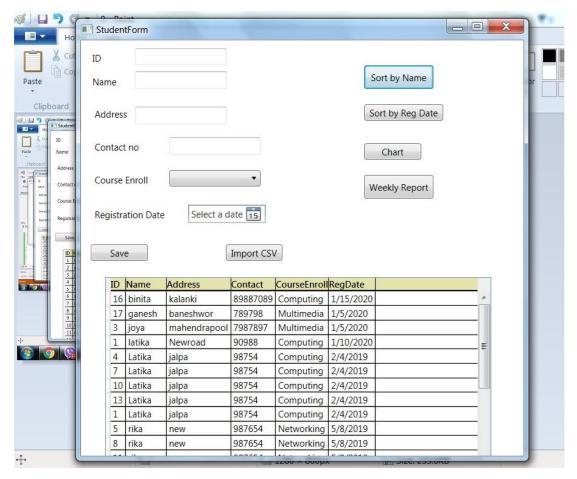


Figure 10

This is the sorted table according to name.

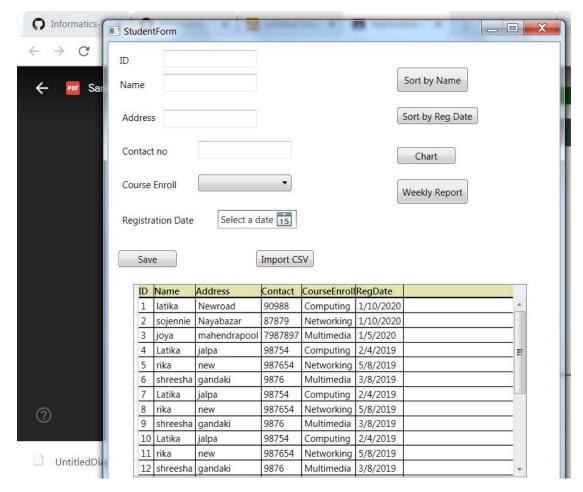


Figure 11

This is the unsorted table.

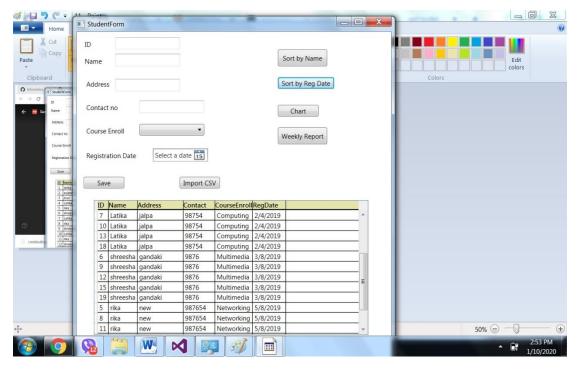


Figure 12

This is the sorted table according to date.

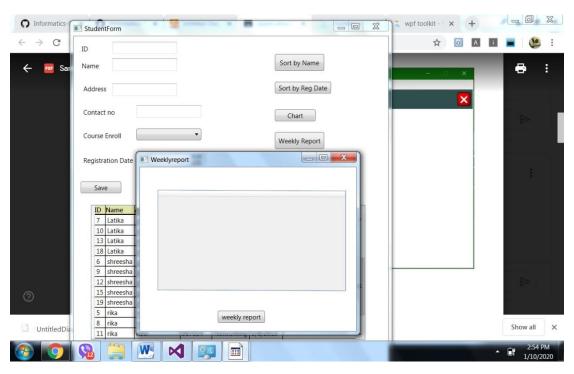


Figure 13

This is the weekly report window.

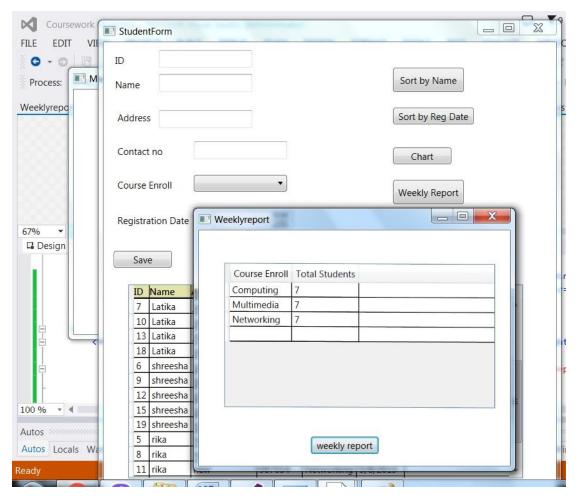


Figure 14

This shows the weekly report according to course enroll.

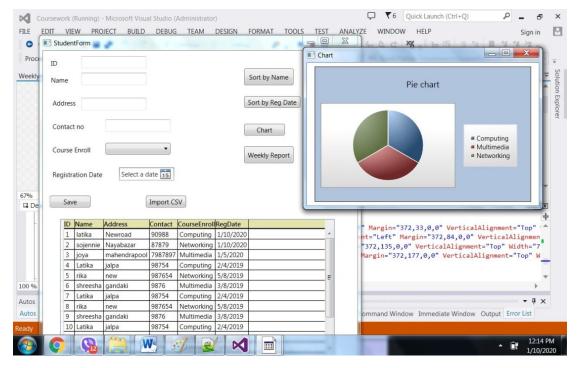


Figure 15

This shows the chart of the weekly report.

3. Journal Article

The **Student Information System (SIS)** is a fully computerized system or more precisely a database where all the student related data can be stored, retrieved, monitored and analyzed. The data is saved in one central location which can be accessed by multiple persons at the same time provided they have the login credentials; this ensures the safety of the stored information. Registration, demand generation, admission, billing, provision of financial aid to students and many other things can be managed with ease making the whole process of student enrollment quick, error free, systematic and undemanding faculty members in channelizing their concentration on the students and their

A. Architecture Design Chart Weekly Report Import CSV Login Sort by Name Sort by Reg date

Figure 16

Class diagram

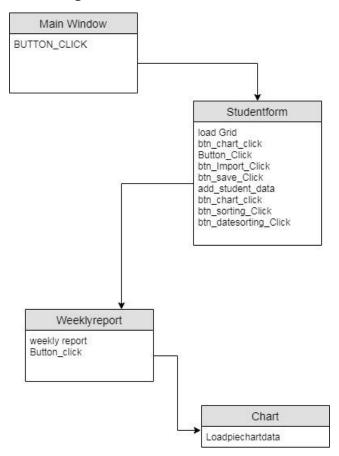


Figure 17

5. Flow chart Report

Weekly report

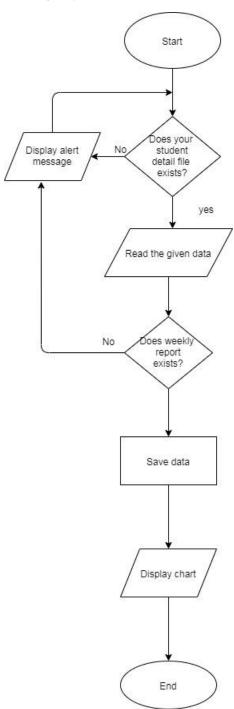


Figure 18

6. Sorting Algorithm

The algorithm used in this system is bubble sort algorithm.

Bubble sort is a simple sorting algorithm. This sorting algorithm is comparison-based algorithm in which each pair of adjacent elements is compared and the elements are swapped if they are not in order. This algorithm is not suitable for large data sets as its average and worst case complexity are of O(n2) where n is the number of items (Anon., n.d.).

Implementing Bubble Sort Algorithm

Following are the steps involved in bubble sort(for sorting a given array in ascending order):

Starting with the first element(index = 0), compare the current element with the next element of the array.

If the current element is greater than the next element of the array, swap them.

If the current element is less than the next element, move to the next element. Repeat Step 1.

Let's consider an array with values {5, 1, 6, 2, 4, 3}

Below, we have a pictorial representation of how bubble sort will sort the given array.

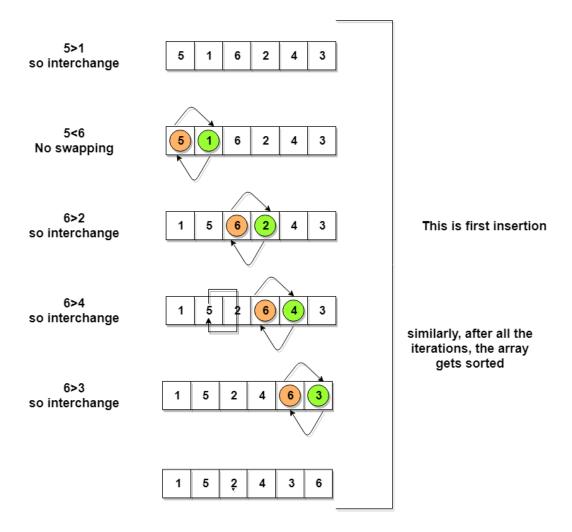


Figure 19

So as we can see in the representation above, after the first iteration, 6 is placed at the last index, which is the correct position for it.

Similarly after the second iteration, 5 will be at the second last index, and so on (Anon., n.d.).

7. Conclusion

This project was implemented using wpf.net framework. This coursework is based to implement a student information system which is used to input student's data.

It required a visual studio. The framework consists of login to provide user security.

After login, it shows the home screen which consist of login form and has various button which is used for the operation of the system.

8. Bibliography

Bibliography

Anon., n.d. https://www.studytonight.com/data-structures/bubble-sort. [Online] Available at: https://www.studytonight.com/data-structures/bubble-sort

Anon., n.d.

https://www.tutorialspoint.com/data_structures_algorithms/bubble_sort_algorithm.htm . [Online]

Available at:

https://www.tutorialspoint.com/data_structures_algorithms/bubble_sort_algorithm.htm

9. Appendix

```
using System;
using System.Collections.Generic;
using System.Data;
using System.IO;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Data;
using System.Windows.Documents;
using System.Windows.Input;
using System.Windows.Media;
using System.Windows.Media.Imaging;
using System.Windows.Shapes;
using DataHandler;
using Microsoft.Win32;
namespace Coursework
    /// <summary>
    /// Interaction logic for StudentForm.xaml
    /// </summary>
    public partial class StudentForm : Window
        DataTable dataTable;
        public StudentForm()
            InitializeComponent();
            viewGrid();
        public void viewGrid()
            if (File.Exists(@"D:\student.xml"))
            {
                var dataSet = new DataSet();
                dataSet.ReadXml(@"D:\student.xml");
                dataTable = dataSet.Tables["Student"];
                DataGridXAML.ItemsSource = dataTable.DefaultView;
            }
        }
        private void btnSave_Click(object sender, RoutedEventArgs e)
            var handler = new Handler();
            var dataSet = new DataSet();
            if (File.Exists(@"D:\student.xml"))
                dataSet.ReadXml(@"D:\student.xml");
            }
```

else

```
{
                dataSet = handler.CreateDataSet();
            AddStudentData(dataSet);
            dataSet.WriteXml(@"D:\student.xml");
            viewGrid();
        }
        private void AddStudentData(DataSet dataSet)
            var dr1 = dataSet.Tables["Student"].NewRow();
            dr1["ID"] = txtId.Text;
            dr1["Name"] = txtname.Text;
            dr1["Address"] = txtAddress.Text;
            dr1["Contact"] = txtContact.Text;
            dr1["CourseEnroll"] = txtCrsEnrl.Text;
            dr1["RegDate"] = txtRegidate.Text;
            dataSet.Tables["Student"].Rows.Add(dr1);
        }
        private void btn_sorting_Click(object sender, RoutedEventArgs e)
            dataTable.DefaultView.Sort = "Name ASC";
            DataGridXAML.DataContext = dataTable.DefaultView;
        }
        private void btn_datesorting_Click(object sender, RoutedEventArgs e)
            dataTable.DefaultView.Sort = "RegDate ASC";
            DataGridXAML.DataContext = dataTable.DefaultView;
        }
        private void btn chart Click(object sender, RoutedEventArgs e)
            Chart chart = new Chart();
            chart.Show();
        }
        private void Button Click(object sender, RoutedEventArgs e)
            Weeklyreport weeklyReport = new Weeklyreport();
            weeklyReport.ShowDialog();
        }
        private void DataGridXAML SelectionChanged(object sender,
SelectionChangedEventArgs e)
        {
        }
        private void btnImport_Click(object sender, RoutedEventArgs e)
            var dataSet = new DataSet();
            dataSet.ReadXml(@"D:\student.xml");
```

```
OpenFileDialog openFileDialog = new OpenFileDialog();
            if (openFileDialog.ShowDialog() == true)
            {
                string filePath = openFileDialog.FileName;
                //read all std from file code copy
                using (var reader = new StreamReader(filePath))
                    reader.ReadLine();
                    while (!reader.EndOfStream)
                        var line = reader.ReadLine();
                        var values = line.Split(',');
                        var newRow = dataSet.Tables["Student"].NewRow();
                        newRow["ID"] = values[0];
                        newRow["Name"] = values[1];
                        newRow["Address"] = values[2];
                        newRow["Contact"] = values[3];
                        newRow["CourseEnroll"] = values[4];
                        newRow["RegDate"] = values[5];
                        dataSet.Tables["Student"].Rows.Add(newRow);
                        dataSet.WriteXml(@"D:\student.xml");
                    }
                }
           }
        }
    }
}
<Window x:Class="Coursework.StudentForm"</pre>
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xam1"
        Title="StudentForm" Height="1405.239" Width="596.12">
        <Label Content="ID" HorizontalAlignment="Left" Margin="10,10,0,0"</pre>
VerticalAlignment="Top"/>
        <Label Content="Name" HorizontalAlignment="Left" Margin="10,41,0,0"</pre>
VerticalAlignment="Top"/>
        <Label Content="Address" HorizontalAlignment="Left" Margin="13,84,0,0"</pre>
VerticalAlignment="Top"/>
        <Label Content="Contact no" HorizontalAlignment="Left"</pre>
Margin="13,127,0,0" VerticalAlignment="Top"/>
        <Label Content="Course Enroll" HorizontalAlignment="Left"</pre>
Margin="13,170,0,0" VerticalAlignment="Top"/>
        <TextBox Name="txtAddress" HorizontalAlignment="Left" Height="23"
Margin="71,87,0,0" TextWrapping="Wrap" Text="" VerticalAlignment="Top"
Width="120"/>
        <TextBox Name="txtContact" HorizontalAlignment="Left" Height="23"
Margin="116,127,0,0" TextWrapping="Wrap" Text="" VerticalAlignment="Top"
        <TextBox x:Name="txtname" HorizontalAlignment="Left" Height="23"</pre>
Margin="71,41,0,0" TextWrapping="Wrap" Text="" VerticalAlignment="Top"
Width="120"/>
        <TextBox x:Name="txtId" HorizontalAlignment="Left" Height="23"</pre>
Margin="71,10,0,0" TextWrapping="Wrap" Text="" VerticalAlignment="Top"
Width="120"/>
```

```
<ComboBox Name="txtCrsEnrl" HorizontalAlignment="Left"</pre>
Margin="116,170,0,0" VerticalAlignment="Top" Width="120">
            <ComboBoxItem Content="Computing"/>
            <ComboBoxItem Content="Networking"/>
            <ComboBoxItem Content="Multimedia"/>
        </ComboBox>
        <Label Content="Registration Date" HorizontalAlignment="Left"</pre>
Margin="13,216,0,0" VerticalAlignment="Top"/>
        <Button Name="btnSave" Content="Save" HorizontalAlignment="Left"</pre>
Margin="13,268,0,0" VerticalAlignment="Top" Width="75" Click="btnSave_Click"/>
        <DatePicker x:Name="txtRegidate" HorizontalAlignment="Left"</pre>
Margin="141,216,0,0" VerticalAlignment="Top"/>
        <Button Name="btnImport" Content="Import CSV"</pre>
HorizontalAlignment="Left" Margin="190,268,0,0" VerticalAlignment="Top"
Width="75" Click="btnImport Click" />
        <DataGrid Name="DataGridXAML" HorizontalAlignment="Left"</pre>
Margin="32,311,0,0" VerticalAlignment="Top" Height="249" Width="507"
SelectionChanged="DataGridXAML SelectionChanged">
            <DataGrid.Resources>
                <Style TargetType="{x:Type DataGridColumnHeader}">
                    <Setter Property="Background" Value="#FFE4E4AB"/>
                    <Setter Property="FontWeight" Value="SemiBold"/>
                    <Setter Property="BorderThickness" Value="0 0 1 2"/>
                    <Setter Property="BorderBrush" Value="Black"/>
                </Style>
            </DataGrid.Resources>
        </DataGrid>
        <Button Name="btn_sorting" Content="Sort by Name"</pre>
HorizontalAlignment="Left" Margin="372,33,0,0" VerticalAlignment="Top"
Width="91" Height="31" Click="btn_sorting_Click"/>
        <Button Name="btn_datesorting" Content="Sort by Reg Date"
HorizontalAlignment="Left" Margin="372,84,0,0" VerticalAlignment="Top"
Width="104" Click="btn_datesorting_Click"/>
        <Button Name="btn_chart" Content="Chart" HorizontalAlignment="Left"</pre>
Margin="372,135,0,0" VerticalAlignment="Top" Width="75"
Click="btn chart Click"/>
        <Button Name="btn_Week" Content="Weekly Report"</pre>
HorizontalAlignment="Left" Margin="372,177,0,0" VerticalAlignment="Top"
Width="91" Height="31" Click="Button Click"/>
    </Grid>
</Window>
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Data;
using System.Windows.Documents;
using System.Windows.Input;
using System.Windows.Media;
using System.Windows.Media.Imaging;
using System.Windows.Navigation;
using System.Windows.Shapes;
namespace Coursework
    /// <summary>
```

```
/// Interaction logic for MainWindow.xaml
    /// </summary>
    public partial class MainWindow : Window
        public MainWindow()
            InitializeComponent();
        private void Button_Click(object sender, RoutedEventArgs e)
            if (Password.Password != "" && Username.Text != "")
                if (Password.Password == "admin" && Username.Text == "admin")
                    MessageBox.Show("Success");
                    StudentForm studentform = new StudentForm();
                    studentform.ShowDialog();
                }
            }
        }
    }
}
<Window x:Class="Coursework.MainWindow"</pre>
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xam1"
        Title="MainWindow" Height="350" Width="525">
    <Grid>
        <Label Content="Login Details" HorizontalAlignment="Left"</pre>
Margin="209,10,0,0" VerticalAlignment="Top"/>
        <Label Content="UserName" Margin="47,36,395.4,0"</pre>
VerticalAlignment="Top"/>
        <Label Content="Password" HorizontalAlignment="Left" Margin="47,83,0,0"</pre>
VerticalAlignment="Top"/>
        <TextBox x:Name="Username" HorizontalAlignment="Left" Height="23"
Margin="186,36,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="120"/>
        <PasswordBox x:Name="Password" HorizontalAlignment="Left"</pre>
Margin="186,83,0,0" VerticalAlignment="Top" Width="78"/>
        <Button Content="Login" HorizontalAlignment="Left" Margin="154,127,0,0"</pre>
VerticalAlignment="Top" Width="75" Click="Button_Click"/>
    </Grid>
</Window>
using System;
using System.Collections.Generic;
using System.Data;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Data;
using System.Windows.Documents;
using System.Windows.Input;
using System.Windows.Media;
using System.Windows.Media.Imaging;
using System.Windows.Shapes;
```

```
namespace Coursework
    /// <summary>
    /// Interaction logic for Weeklyreport.xaml
    /// </summary>
    public partial class Weeklyreport : Window
        public Weeklyreport()
             InitializeComponent();
        }
        private void button_click(object sender, RoutedEventArgs e)
            var dataset = new DataSet(); // declaring new data set
             dataset.ReadXml(@"D:\student.xml"); // reading main report
            DataTable stdReport = dataset.Tables[0];
             int total_Com = 0;
                                  // assigning initial values of Course to
             int total Mul = 0;
             int total_Net = 0;
             DataTable dt = new DataTable("tbl");
             dt.Columns.Add("Course Enroll", typeof(String)); // creating two
columns
             dt.Columns.Add("Total Students", typeof(int));
             for (int i = 0; i < stdReport.Rows.Count; i++)</pre>
                 String col = stdReport.Rows[i]["CourseEnroll"].ToString();
                 if (col == "Computing")
                 {
                     total_Com++; // incrementing values of each course based
on user input
                 else if (col == "Multimedia")
                 {
                     total_Mul++;
                 }
                 else if (col == "Networking")
                 {
                     total_Net++;
                 }
             }
            dt.Rows.Add("Computing", total_Com);
dt.Rows.Add("Multimedia", total_Mul);
dt.Rows.Add("Networking", total_Net);
                                                             // final assign
            WeeklyGrid.ItemsSource = dt.DefaultView; // is the name of data
grid
        }
    }
<Window x:Class="Coursework.Weeklyreport"</pre>
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
```

```
xmlns:x="http://schemas.microsoft.com/winfx/2006/xam1"
        Title="Weeklyreport" Height="338.209" Width="414.627">
    <Grid>
        <DataGrid x:Name="WeeklyGrid" HorizontalAlignment="Left"</pre>
Margin="33,42,0,0" VerticalAlignment="Top" Height="185" Width="348"
RenderTransformOrigin="0.5,0.5">
            <DataGrid.RenderTransform>
                <TransformGroup>
                    <ScaleTransform/>
                    <SkewTransform AngleY="0.263"/>
                    <RotateTransform/>
                    <TranslateTransform Y="0.592"/>
                </TransformGroup>
            </DataGrid.RenderTransform>
        </DataGrid>
        <Button Content="weekly report" HorizontalAlignment="Left"</pre>
Margin="144,265,0,0" VerticalAlignment="Top" Width="87" Height="22"
Click="button_click"/>
    </Grid>
</Window>
using System;
using System.Collections.Generic;
using System.Data;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Controls.DataVisualization.Charting;
using System.Windows.Data;
using System.Windows.Documents;
using System.Windows.Input;
using System.Windows.Media;
using System.Windows.Media.Imaging;
using System.Windows.Shapes;
namespace Coursework
{
    /// <summary>
    /// Interaction logic for Chart.xaml
    /// </summary>
    public partial class Chart : Window
        public Chart()
            InitializeComponent();
            LoadPieChartData();
        private void LoadPieChartData()
            var dataset = new DataSet(); // declaring new data set
            dataset.ReadXml(@"D:\student.xml"); // reading main report
            DataTable stdReport = dataset.Tables[0];
            int total_Com = 0;
                                // assigning initial values of Course to
            int total_Mul = 0;
            int total_Net = 0;
            DataTable dt = new DataTable("tbl");
            dt.Columns.Add("Course Enroll", typeof(String)); // creating two
columns
```

```
dt.Columns.Add("Total Students", typeof(int));
            for (int i = 0; i < stdReport.Rows.Count; i++)</pre>
                String col = stdReport.Rows[i]["CourseEnroll"].ToString();
                if (col == "Computing")
                     total_Com++; // incrementing values of each course based
on user input
                else if (col == "Multimedia")
                     total_Mul++;
                }
                else if (col == "Networking")
                 {
                     total_Net++;
                 }
            }
            dt.Rows.Add("Computing", total_Com);
                                                       // final assign
            dt.Rows.Add("Multimedia", total_Mul);
            dt.Rows.Add("Networking", total_Net);
            ((PieSeries)Piechart).ItemsSource =
                new KeyValuePair<string, int>[]{
        new KeyValuePair<string,int>("Computing", total_Com),
new KeyValuePair<string,int>("Multimedia", total_Mul),
        new KeyValuePair<string,int>("Networking", total_Net));
        }
    }
}
<Window x:Class="Coursework.Chart"</pre>
        xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
        xmlns:x="http://schemas.microsoft.com/winfx/2006/xam1"
        xmlns:DV="clr-
namespace:System.Windows.Controls.DataVisualization;assembly=System.Windows.Con
trols.DataVisualization.Toolkit"
        xmlns:DVC="clr-
namespace:System.Windows.Controls.DataVisualization.Charting;assembly=System.Wi
ndows.Controls.DataVisualization.Toolkit"
        Title="Chart" Height="300" Width="300">
    <Grid Margin="0,0,-115.4,0">
        <DVC:Chart Margin="0" Title="Pie chart"
                                                    Width="400" Height="250"
Background="LightSteelBlue">
            <DVC:PieSeries x:Name="Piechart" IndependentValueBinding="{Binding</pre>
Path=Key}" DependentValueBinding="{Binding Path=Value}">
                     </DVC:PieSeries>
using System;
using System.Data;
namespace DataHandler
    public class Handler
        public DataSet CreateDataSet()
```

```
{
            var ds = new DataSet();
            ds.Tables.Add(CreateCourseTable());
            ds.Tables.Add(CreateStudentTable());
            ds.Tables.Add(CreateStudentReportTable());
            ForeignKeyConstraint courseWorkFK = new
ForeignKeyConstraint("courseWorkFK",
            ds.Tables["Course"].Columns["ID"],
            ds.Tables["Student"].Columns["CourseEnroll"]);
            courseWorkFK.DeleteRule = Rule.None;
            ds.Tables["Student"].Constraints.Add(courseWorkFK);
            return ds;
        }
        private DataTable CreateStudentTable()
            var dt = new DataTable("Student");
            DataColumn dataColumn = new DataColumn("ID", typeof(int));
            dataColumn.AutoIncrement = true;
            dataColumn.AutoIncrementSeed = 1;
            dataColumn.AutoIncrementStep = 1;
            dt.Columns.Add(dataColumn);
            dt.Columns.Add("Name", typeof(string));
            dt.Columns.Add("Address", typeof(string));
            dt.Columns.Add("ContactNo", typeof(string));
            dt.Columns.Add("CourseEnroll", typeof(int));
            dt.Columns.Add("RegistrationDate", typeof(DateTime));
            //dt.Columns.Add("PermanentAddress", typeof(string));
            //dt.Columns.Add("ParentsName", typeof(string));
            //dt.Columns.Add("ParentsContact", typeof(string));
            //dt.Columns.Add("", typeof(string));
            //dt.Columns.Add("Address", typeof(string));
            //dt.Columns.Add("Address", typeof(string));
            //dt.Columns.Add("Address", typeof(string));
            dt.PrimaryKey = new DataColumn[] { dt.Columns["ID"] };
            return dt;
        }
        private DataTable CreateCourseTable()
            var dt = new DataTable("Course");
            DataColumn dataColumn = new DataColumn("ID", typeof(int));
            dataColumn.AutoIncrement = true;
            dataColumn.AutoIncrementSeed = 1;
            dataColumn.AutoIncrementStep = 1;
            dt.Columns.Add(dataColumn);
            dt.Columns.Add("Name", typeof(string));
            dt.Columns.Add("DisplayText", typeof(string));
           // dt.Columns.Add("CourseDuration", typeof(string));
            dt.PrimaryKey = new DataColumn[] { dt.Columns["ID"] };
            return dt;
        private DataTable CreateStudentReportTable()
```

```
var dt = new DataTable("StudentReport");
DataColumn dataColumn = new DataColumn("ID", typeof(int));
dataColumn.AutoIncrement = true;
dataColumn.AutoIncrementSeed = 1;
dataColumn.AutoIncrementStep = 1;

dt.Columns.Add(dataColumn);

dt.Columns.Add("RegNo", typeof(string));
dt.Columns.Add("Name", typeof(string));
dt.Columns.Add("Address", typeof(string));
dt.Columns.Add("ContactNo", typeof(string));
dt.Columns.Add("CourseEnroll", typeof(int));
dt.Columns.Add("RegistrationDate", typeof(DateTime));

//dt.PrimaryKey = new DataColumn[] { dt.Columns["ID"] };
return dt;
}
```