Informatics College Pokhara

Application Development

CS6004NP

Coursework 1

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Date:	10-Jan-2020	

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1 Introduction

The designed system is Student Information System. All the user interface and code were written and developed in C#. This system is a desktop based application without any web-based nor database application for a institution. Its UI is highly designed and is tested under numerous circumstances. The application allow the user to input the student personal detail including registration date so that the system can generate a weekly enrolment report of the student. This include detail like student ID, Name, address, contact no, email, course enrol, registration date. User can import a record from a text file such as files in .CSV format or create new record. All the features and functions that are required by Student Information System is fulfilled by the developed application. Other than this, it shows weekly tabular report showing total number of students enrolled so far in each course offered by the institution. The total number of student on each program (computing, multimedia, and networking) is shown in a chart. Last but not the least, other functions and features are well described in other section of the report.

2 User Manual

“Simplicity is the ultimate sophistication” by Leonardo da Vinci. As said by him, the way I look and understand is simplicity goes hand in hand with perfection. With that in mind, the UI, features and functions of the Student Information System is made as simple as possible for the user to interact without any trouble.

In this user manual, a detailed instructions to run the system step by step are described with additional screenshot of the system. It is also user-friendly and responsive.

Login

The initial screen of the application is the login window. This window can also be view as security screen. Without correct username and password user cannot access any features and functions provided by the application. The default username and password of the current application is “admin”. Only a valid username and password can provide access to the system.

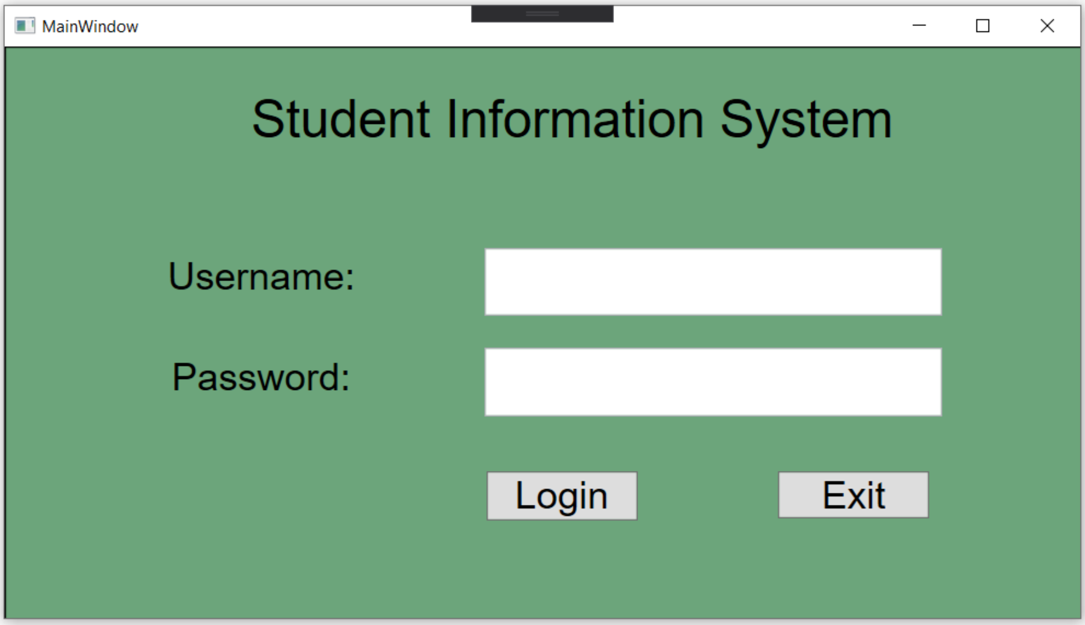
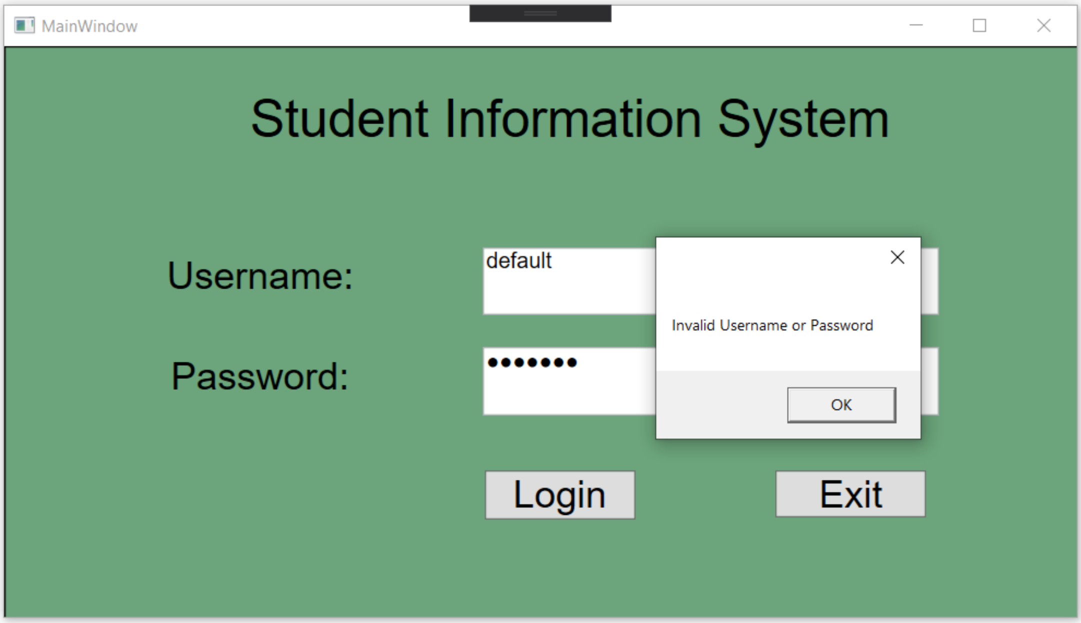


Figure 1: Login Window

Validation

If the username and password is not correct, it shows:



Invalid Username or Password

Figure 2: Login Window Validation

Home

Once the user enters the username and password successfully, the first window that appears in front of them is the home window. This is the main screen of the system which contains five buttons. They are Student Enroll, Generate Report, Import, Weekly Report and Chart. Each of these buttons opens different windows. Each of these buttons has its own features and are responsive. If a user wants to view weekly report of students then he/she clicks the weekly report which opens of the weekly report window. Same goes with all other remaining buttons. Since this window only contains buttons that goes to different other windows, there is no validation.

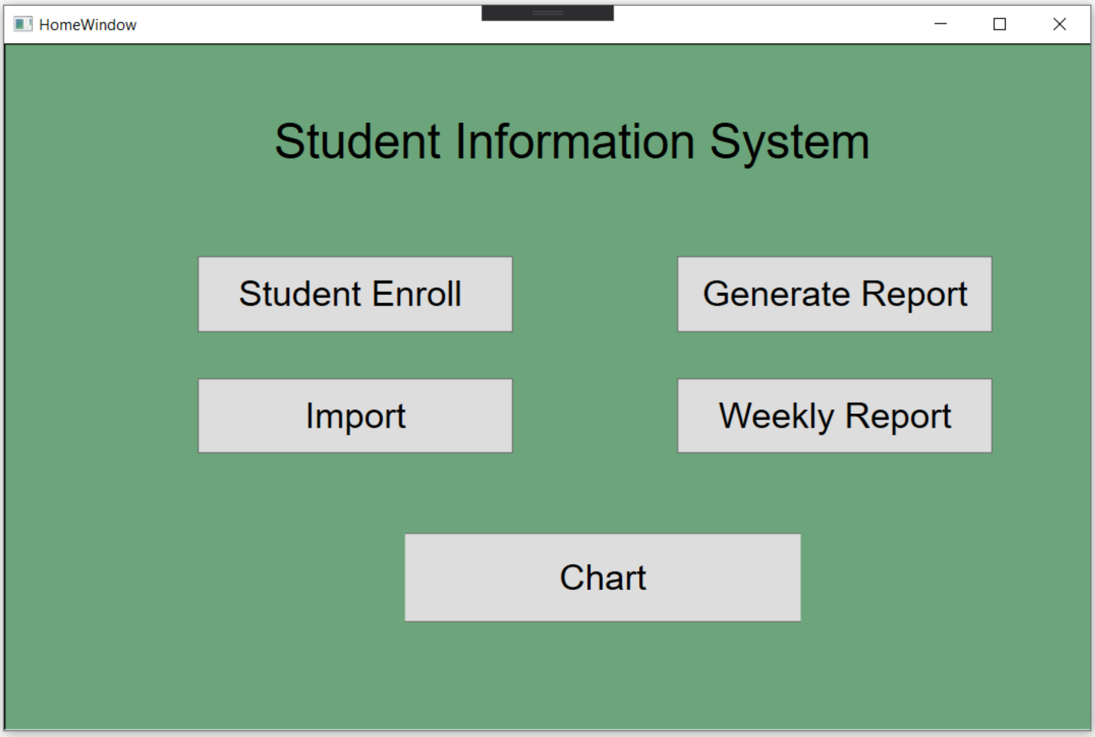
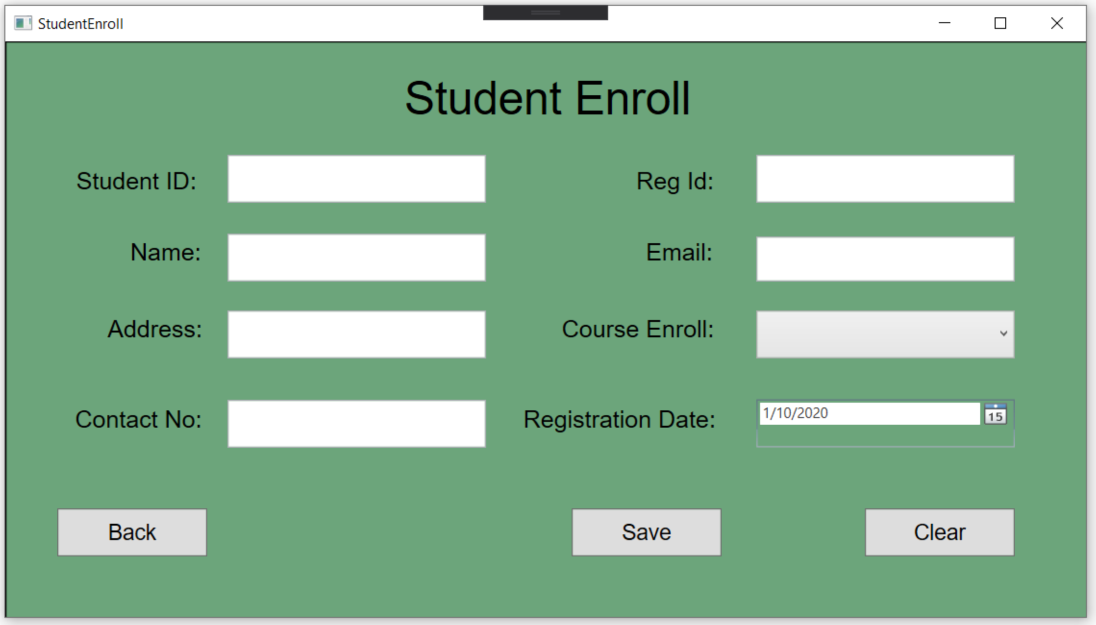


Figure 3: Home Window

Student Enroll

Student Enroll window is opened once the user clicks the Student Enroll button. It is a form that helps to enroll new students to the institution. Student can manually add there details such as registration id, student name, address, etc. in the textbox. Once the student adds all the required information, they click the save button create and save student details. Student can go back to the home window by simply pressing the “Back” button.

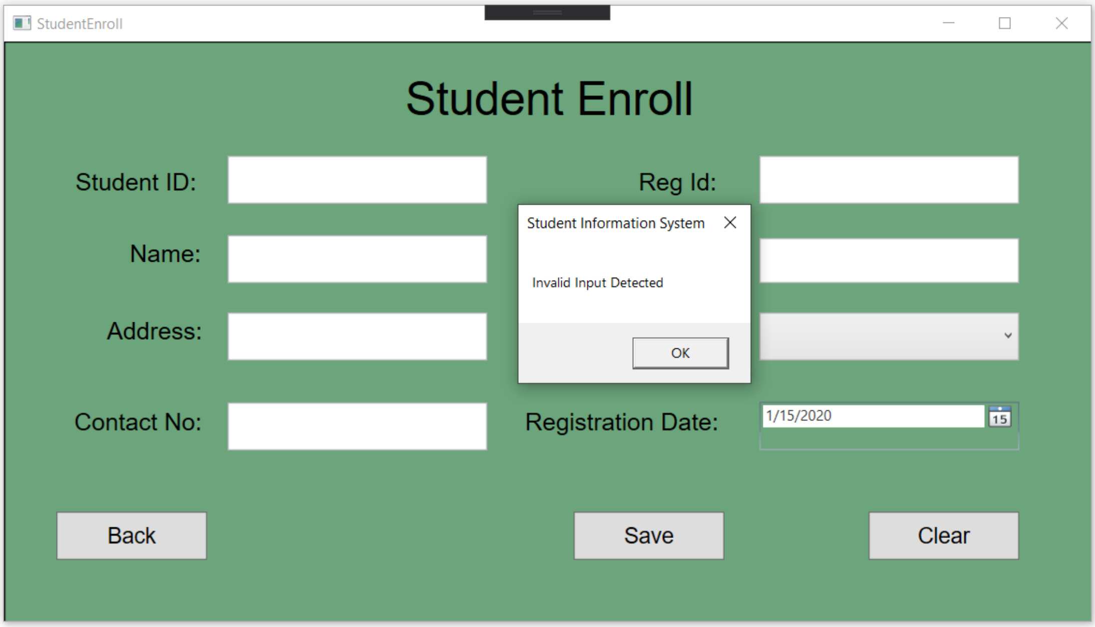


Registration Date: 1/10/2020

Figure 4: Student Enroll Window

Validation

A message box appears if student does not fill up the form correctly.



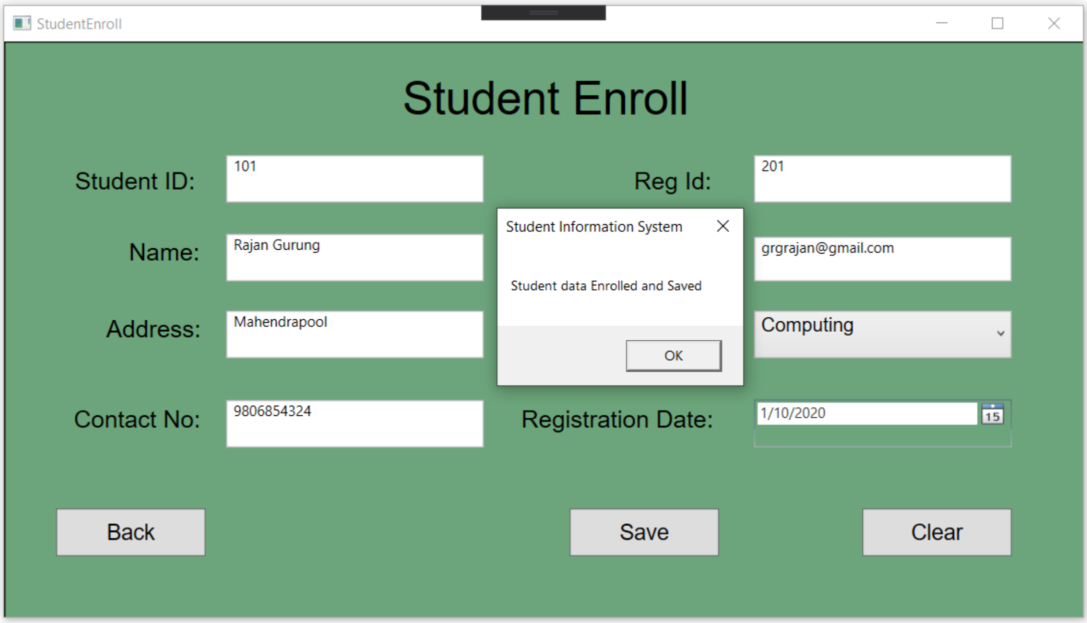
Student Information System

Invalid Input Detected

Registration Date: 1/15/2020

Figure 5: Student Eroll Error Messagebox

After user enter their details correctly, it shows



Student ID: 101

Reg Id: 201

Name: Rajan Gurung

grgrajan@gmail.com

Address: Mahendrapool

Computing

Contact No: 9806854324

Registration Date: 1/10/2020

Student Information System

Student data Enrolled and Saved

Figure 6: Student Enroll Message

Generate Report

It consists of three buttons. To display the enrolled student data user can click on “Display Enrolled Student” button. User can also display two different reports, listing the students detail like id, name, course enrol and registration date one sorted by student first name and the other sorted by registration date.

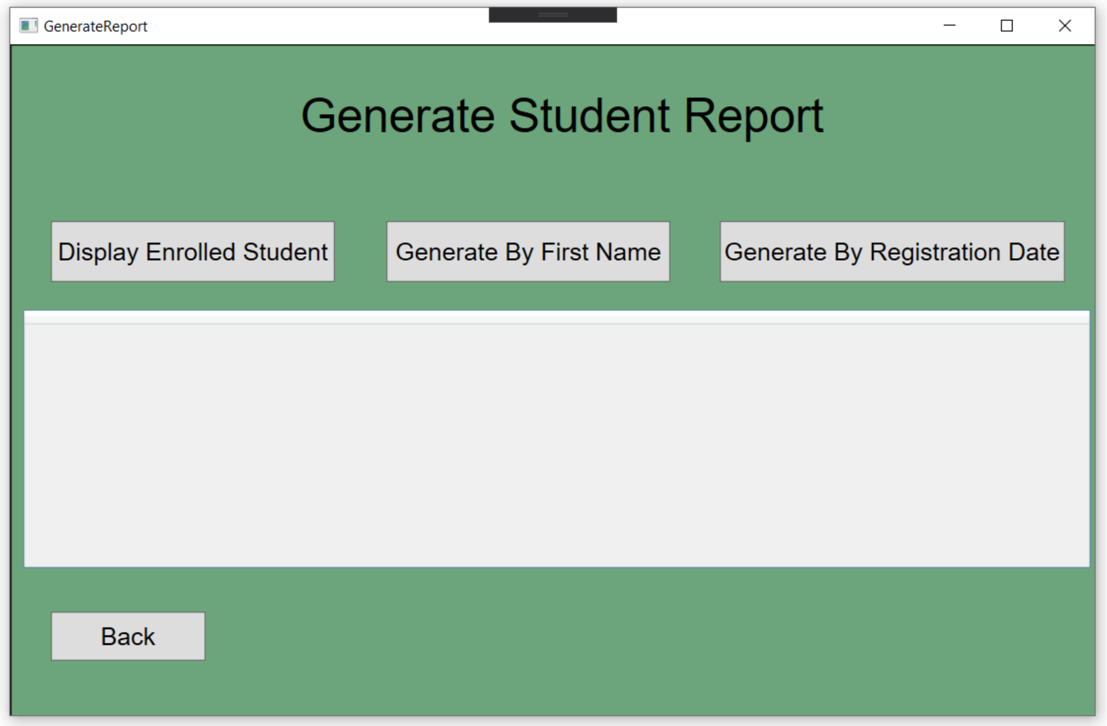
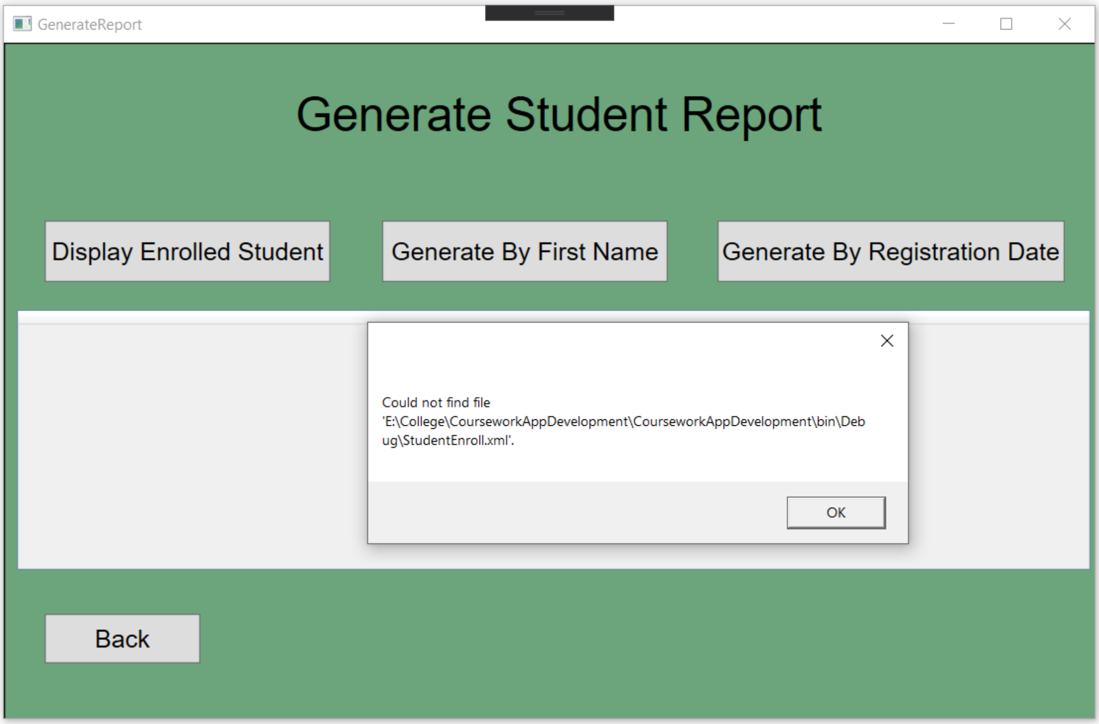


Figure 7: Generate Student Report Window

Validation

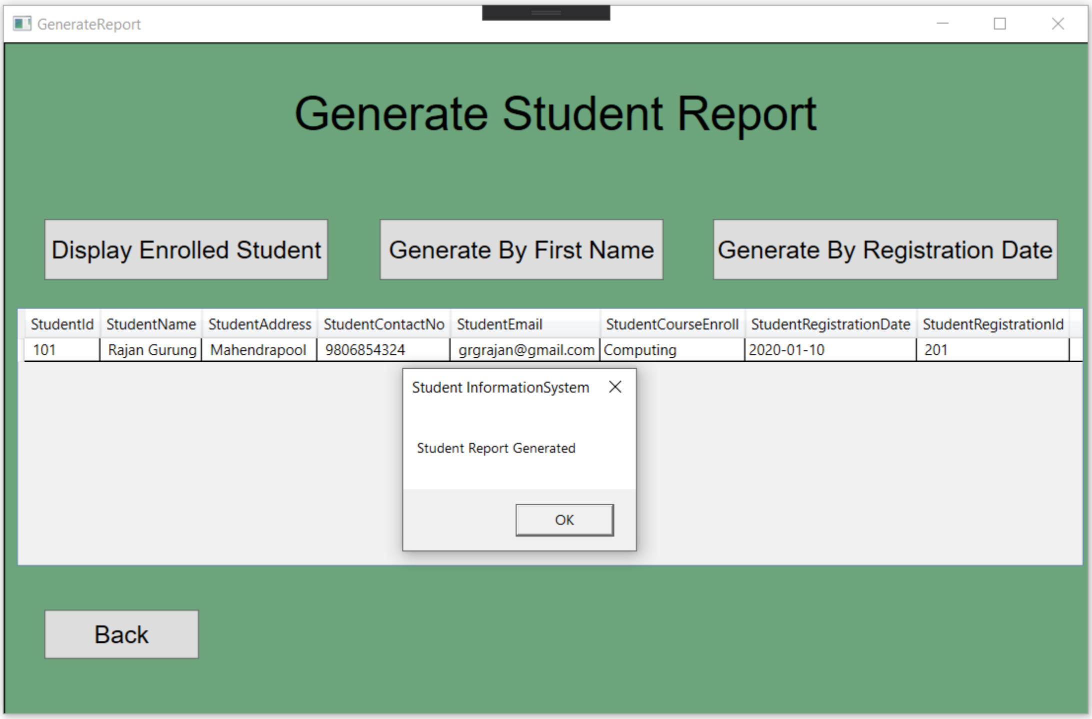
If the system cannot find .xml file, it throws an error showing in messagebox.



```
Could not find file
'E:\College\CourseworkAppDevelopment\CourseworkAppDevelopment\bin\Deb
ug\StudentEnroll.xml'.
```

Figure 8: Generate Student Report Error

Once the student is erolled, it can be viewed in generate report by clicking the “Display Enrolled Student” button.



Generate Student Report

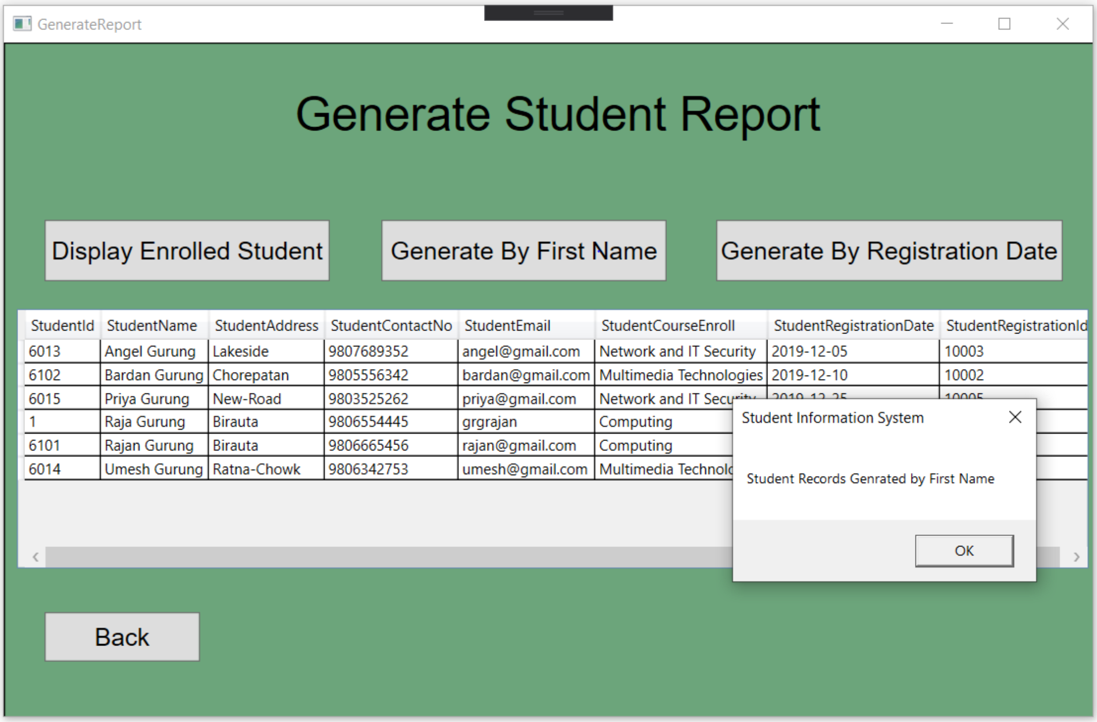
StudentId	StudentName	StudentAddress	StudentContactNo	StudentEmail	StudentCourseEnroll	StudentRegistrationDate	StudentRegistrationId
101	Rajan Gurung	Mahendrapool	9806854324	grgrajan@gmail.com	Computing	2020-01-10	201

Student InformationSystem

Student Report Generated

OK

Figure 9: Display Enrolled Student



Generate Student Report

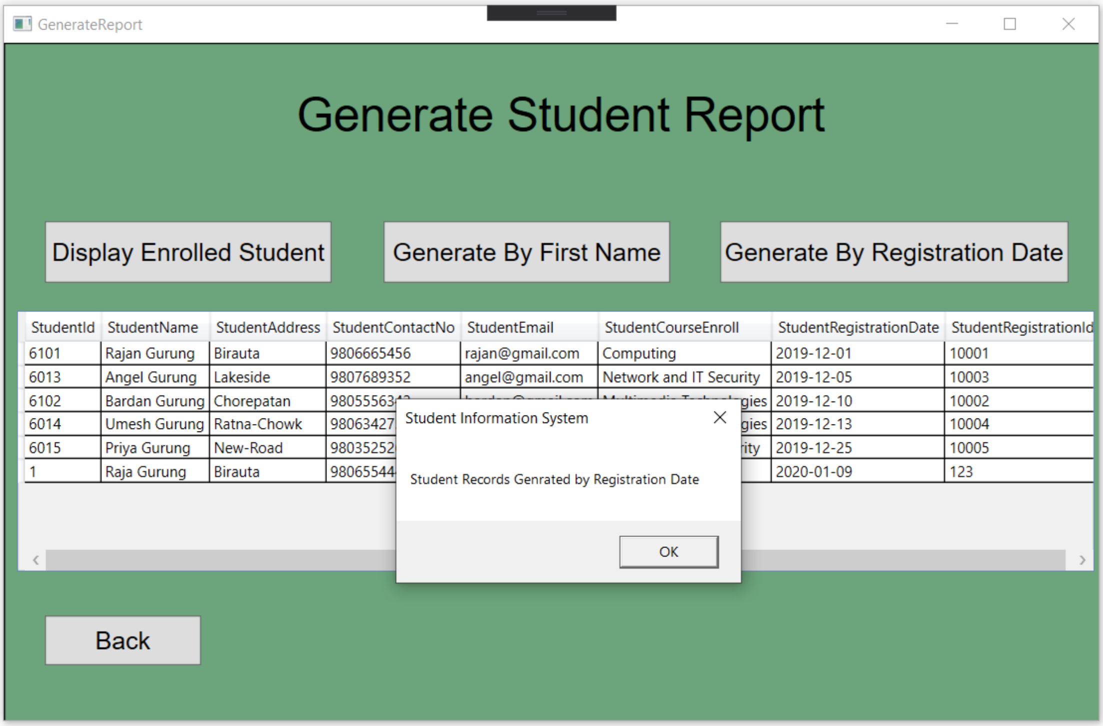
StudentId	StudentName	StudentAddress	StudentContactNo	StudentEmail	StudentCourseEnroll	StudentRegistrationDate	StudentRegistrationId
6013	Angel Gurung	Lakeside	9807689352	angel@gmail.com	Network and IT Security	2019-12-05	10003
6102	Bardan Gurung	Chorepatan	9805556342	bardan@gmail.com	Multimedia Technologies	2019-12-10	10002
6015	Priya Gurung	New-Road	9803525262	priya@gmail.com	Network and IT Secu	2019-12-25	10005
1	Raja Gurung	Birauta	9806554445	grgrajan	Computing		
6101	Rajan Gurung	Birauta	9806665456	rajan@gmail.com	Computing		
6014	Umesh Gurung	Ratna-Chowk	9806342753	umesh@gmail.com	Multimedia Technolo		

Student Information System

Student Records Genrated by First Name

OK

Figure 10: Generate By First Name



Generate Student Report

StudentId	StudentName	StudentAddress	StudentContactNo	StudentEmail	StudentCourseEnroll	StudentRegistrationDate	StudentRegistrationId
6101	Rajan Gurung	Birauta	9806665456	rajan@gmail.com	Computing	2019-12-01	10001
6013	Angel Gurung	Lakeside	9807689352	angel@gmail.com	Network and IT Security	2019-12-05	10003
6102	Bardan Gurung	Chorepatan	980555634	bardan@gmail.com	Multimedia Technologies	2019-12-10	10002
6014	Umesh Gurung	Ratna-Chowk	98063427		gies	2019-12-13	10004
6015	Priya Gurung	New-Road	98035252		rity	2019-12-25	10005
1	Raja Gurung	Birauta	98065544			2020-01-09	123

Student Information System

Student Records Genrated by Registration Date

Figure 11: Generate By Registration Date

Import

In the import window, student can import record from a text file like in .CSV format. Once the record is import, it is shown in the datagrid table of “Generate Report” Window.

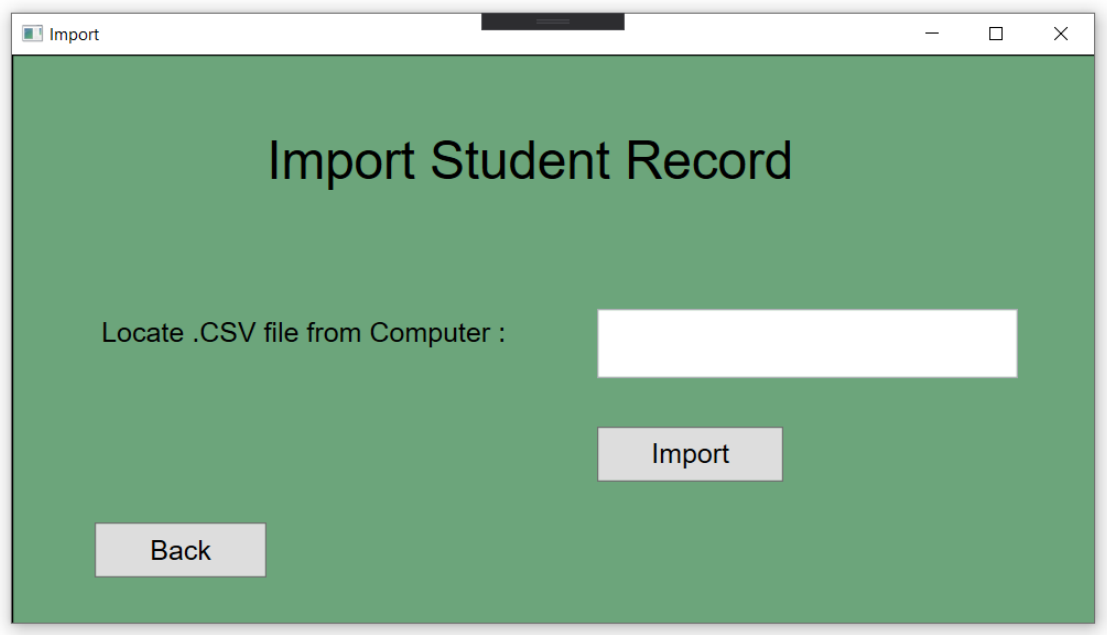
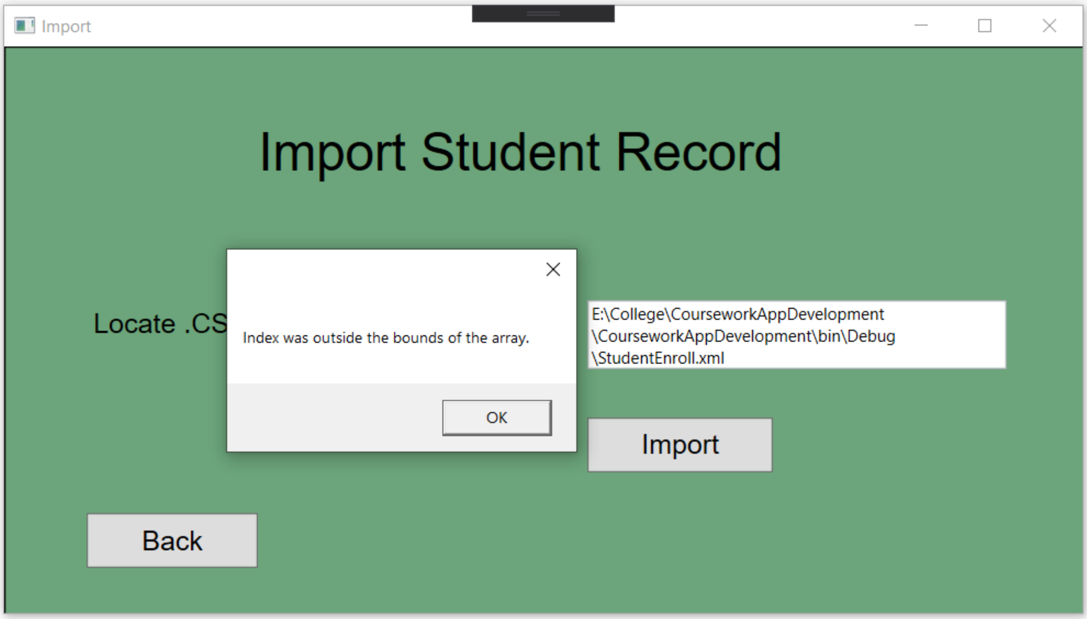


Figure 12: Import Student Record Window

Validation:

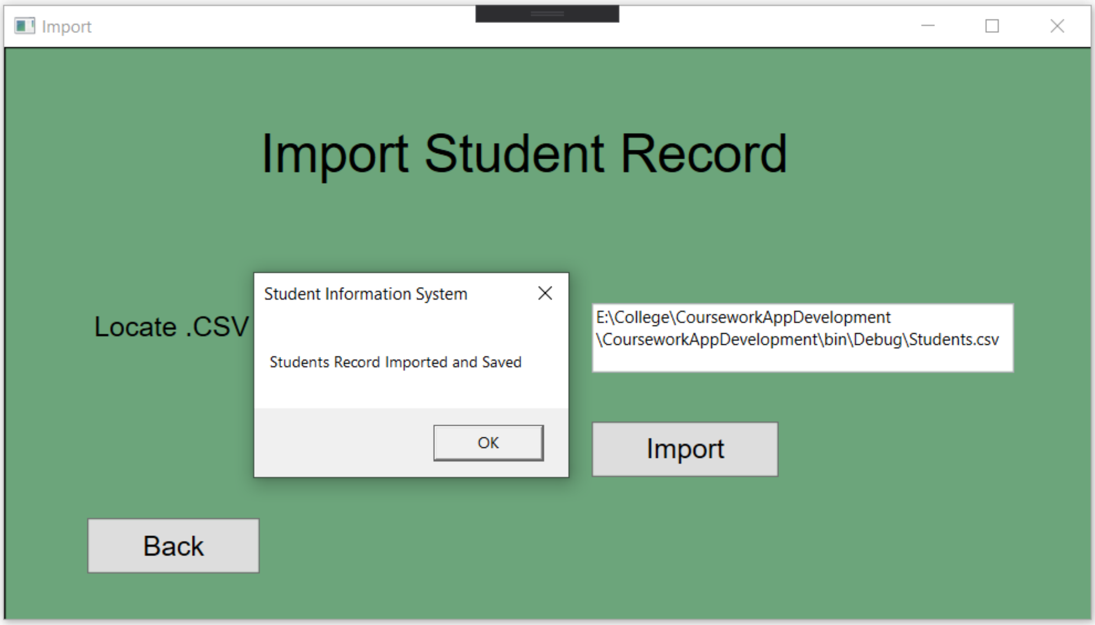
If user tries to import files without .CSV extension, it gives an error message.



Import
Import Student Record
Locate .CS
E:\College\CourseworkAppDevelopment\CourseworkAppDevelopment\bin\Debug\StudentEnroll.xml
OK
Import
Back

Index was outside the bounds of the array.

Figure 13: import Student Record Error Message

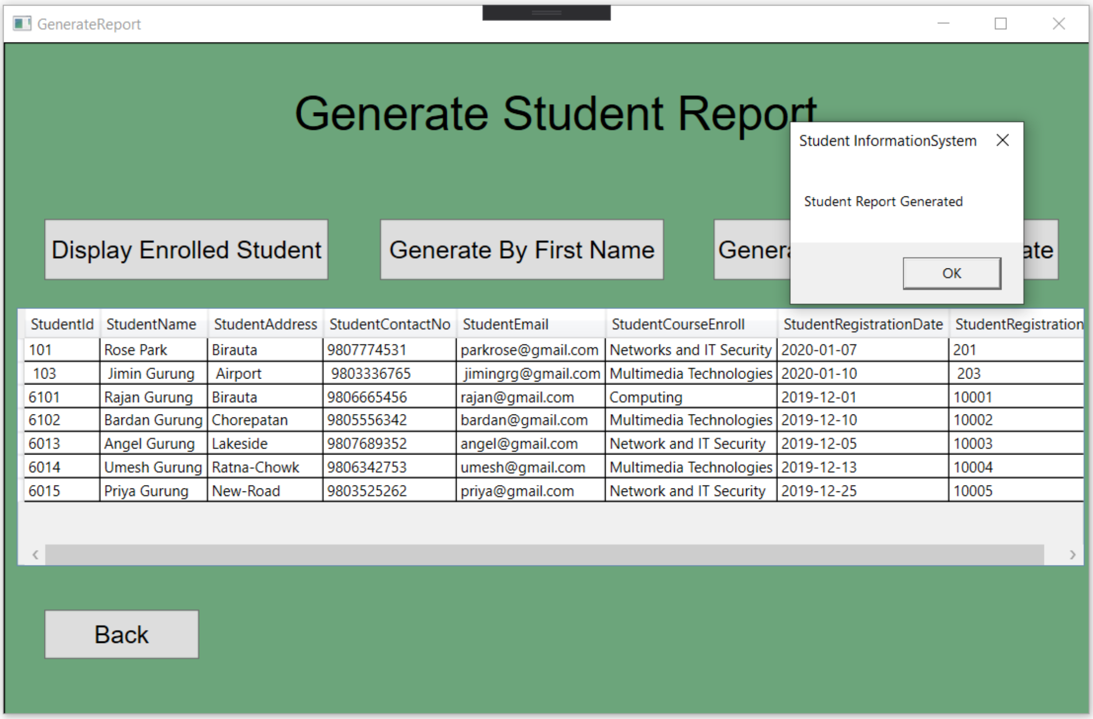


Import
Import Student Record
Locate .CSV
E:\College\CourseworkAppDevelopment\CourseworkAppDevelopment\bin\Debug\Students.csv
OK
Import
Back

Student Information System

Students Record Imported and Saved

Figure 14: Import Student Record Saved



Student InformationSystem

Student Report Generated

OK

StudentId	StudentName	StudentAddress	StudentContactNo	StudentEmail	StudentCourseEnroll	StudentRegistrationDate	StudentRegistration
101	Rose Park	Birauta	9807774531	parkrose@gmail.com	Networks and IT Security	2020-01-07	201
103	Jimin Gurung	Airport	9803336765	jimingrg@gmail.com	Multimedia Technologies	2020-01-10	203
6101	Rajan Gurung	Birauta	9806665456	rajan@gmail.com	Computing	2019-12-01	10001
6102	Bardan Gurung	Chorepatan	9805556342	bardan@gmail.com	Multimedia Technologies	2019-12-10	10002
6013	Angel Gurung	Lakeside	9807689352	angel@gmail.com	Network and IT Security	2019-12-05	10003
6014	Umesh Gurung	Ratna-Chowk	9806342753	umesh@gmail.com	Multimedia Technologies	2019-12-13	10004
6015	Priya Gurung	New-Road	9803525262	priya@gmail.com	Network and IT Security	2019-12-25	10005

Figure 15: Display Imported Records

Weekly Report

In the weekly window, user can display weekly tabular report showing total number of students enrolled so far in each course offered by the institution by simply pressing the “Display Record” button.

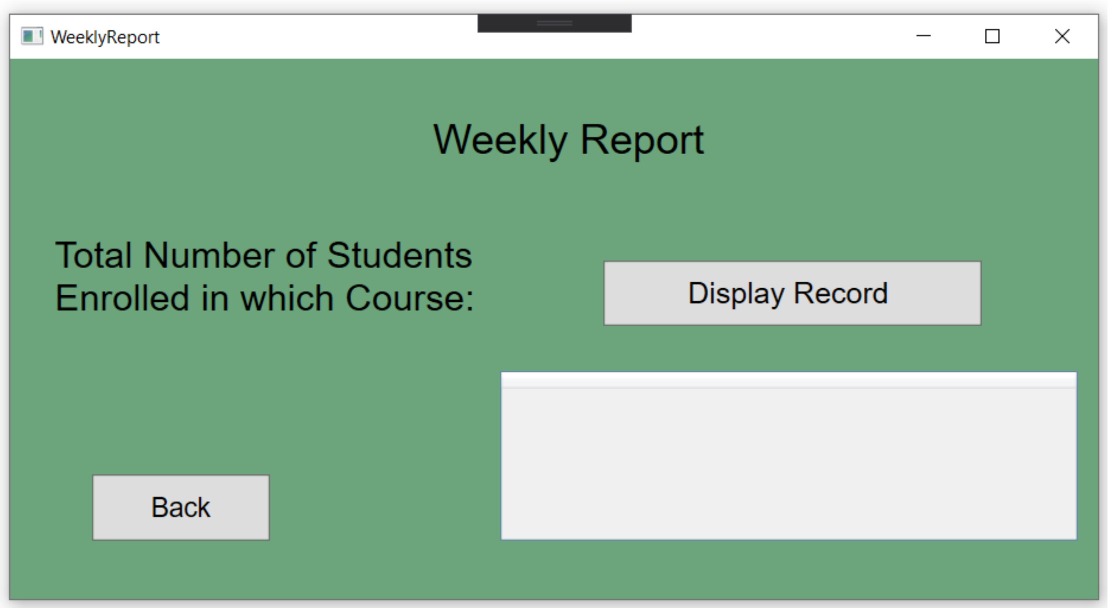
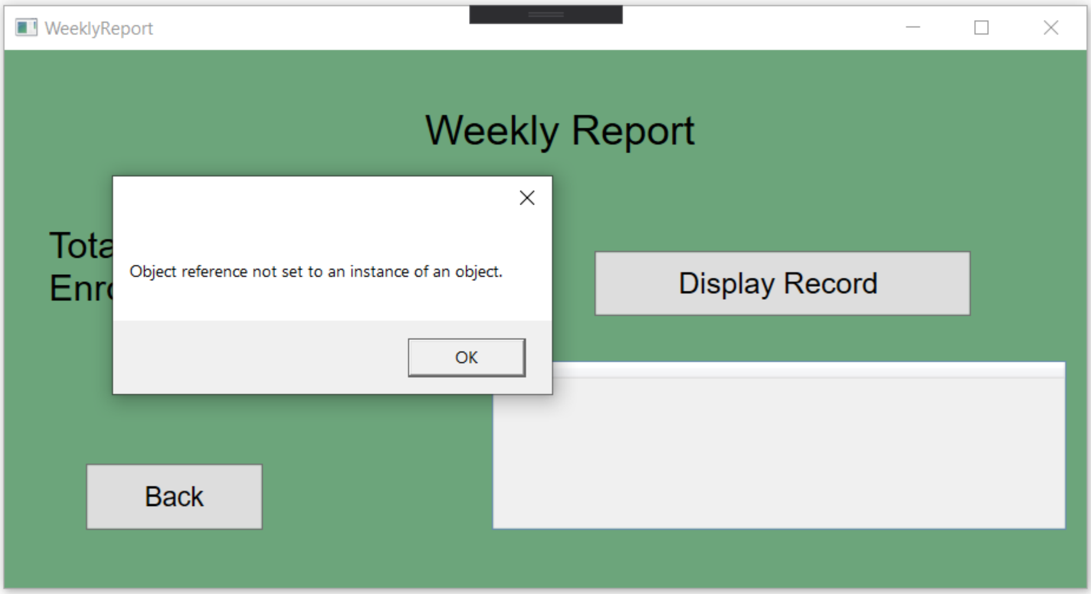


Figure 16: Weekly Report Window

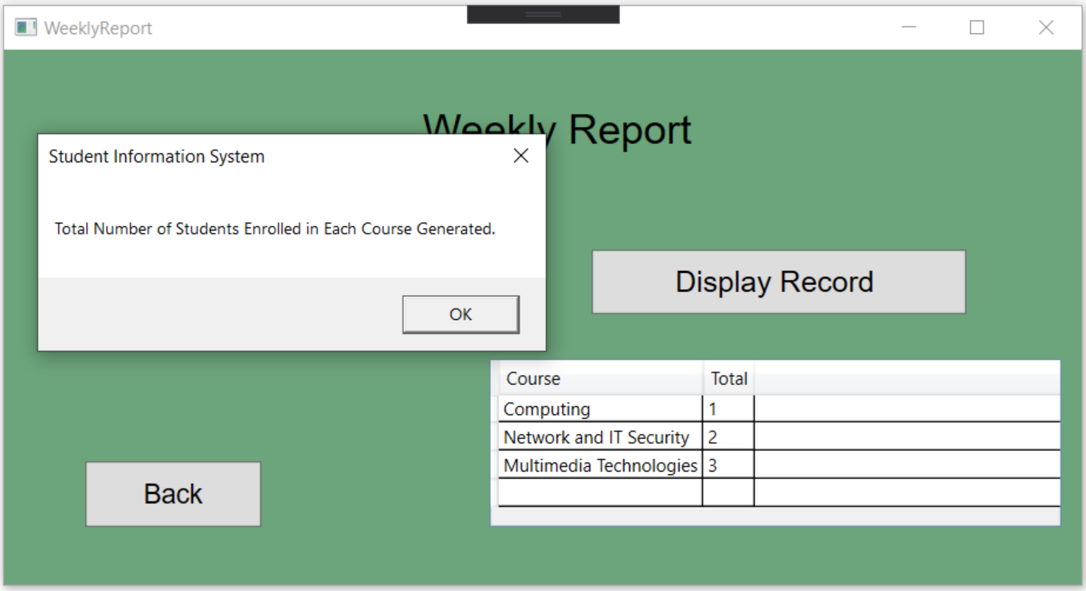
Validation

If there is no record to display in .xml file it throws an error.



Object reference not set to an instance of an object.

Figure 17: Weekly Report Error Message



Student Information System

Total Number of Students Enrolled in Each Course Generated.

Course	Total
Computing	1
Network and IT Security	2
Multimedia Technologies	3

Figure 18: Total Number of Students Enrolled in Course

Chart

In this window, a pie chart is generated which shows the total number of students enrolled.

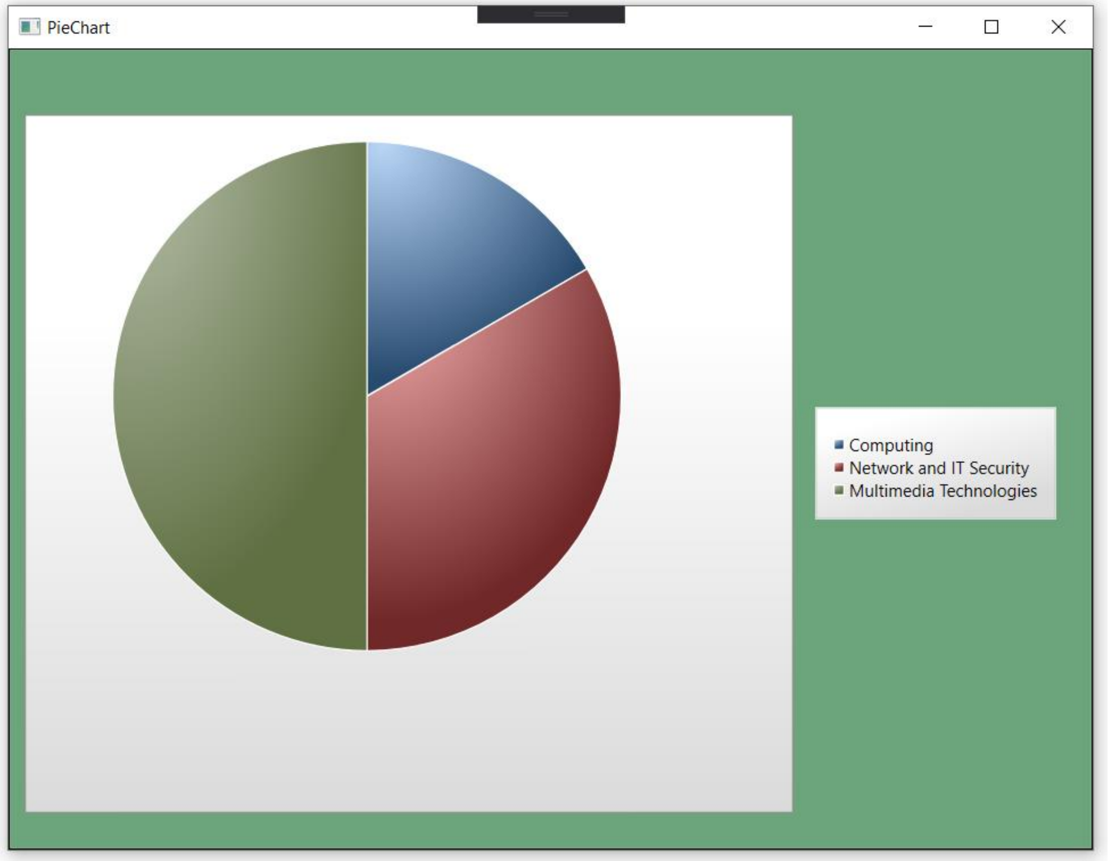


Figure 19: Pie Chart

3 Description of Classes and its method

StudentInformationClass

In this class, eight string based parameter are created and set to private so that it cannot be accessed by others. After setting all the parameter, get:set is applied to get StudentId, StudentName, StudentAddress, StudentContactNo, StudentEmail, StudentRegistrationDate, StudentRegistrationID.

StudentEnroll Class

All the activities related to student enrollment i.e. creating and entering new student details takes place. In this class, a form is created in which students fill-up and the data is saved in .xml file. It contains and shows student id, student name, address, contact number, email, registration date, registration id. The methods used in this class are:

AddStudentData()

This method contains StudentInformationClass obj, with string parameter RecordName. XMlSerializer class object is created and used which helps to control how objects are encoded into XML. This method helps to add new student data in .xml file in a single root node.

onClick Events

btnSaveStudentEnroll_Click

In this button, validation plus .xml file is generated by calling the AddStudentData() method. It shows “data enrolled and saved’ message if the values are correctly entered.

btnClearForm_Click

This button clears up the entire form so that the new student can re-enter their respective details.

btnBack_Home_Click

Back button is created so that user can go back to the home window.

GenerateReport Class

This class contains four **onClick Events**. btnGenerateBack_Click is created to go back to home window, btnGenerate_Click is created to display enrolled student details, btnReportName_Click is created to display students details by first name whereas btnGenerateByregistrationDate_Click is created to show student details via registration date.

Import Class

There all altogether two **onCick Events**. btnImport_Click button is created to import .csv file and add it in the .xml file. If a user tries to enter other than .csv file it throws an error message whereas if the user imports the .csv file its shows “record imported and saved” message and the imported details can be view in weekly report window. The btnImportBack_Click button is used to go back to home window.

WeeklyReport Class

This contains StudentCourse() method. In this method, first it checks if the “StudentEnroll.xml” file exits or not. If it exists, it reads the file and display it in the datagrid. Like other window class, this contains two **onClick Events** buttons. The btnTotal_Click finds out the total number of student enroll in which course and shows a message “total number of students erolled in each course”. If not it throws an error message. There is also a back button so user can go back to the previous window.

Chart

In this class, a pie chart is generated using the total number of students enrolled in each course. To make the chart, I downloaded WPF Toolkit from the website. (Mahesh Chand, 2019) After downloading it, I followed the step by step method as show in the website. If there is no course enrolled, it throws and error message. The other button is the back button.

4 System Architecture

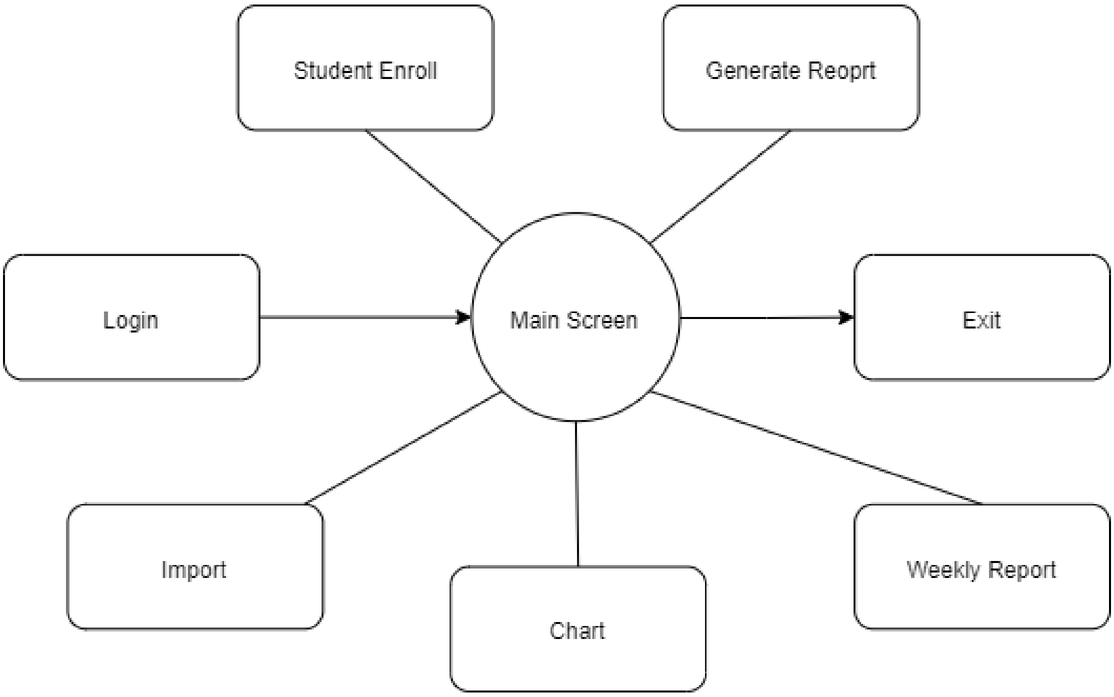


Figure 20: System Architecture

5 Student Enrollment flow chat

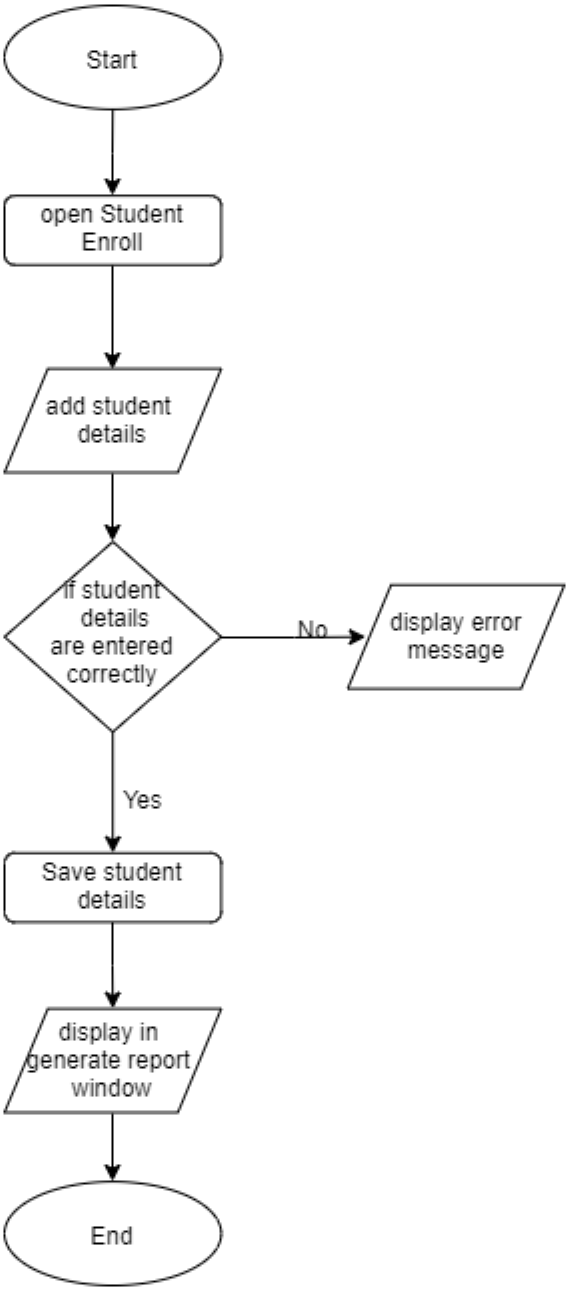


Figure 21: Flowchart Student Enroll

6 Algorithms of Student Enroll

Steps

1. Start
2. Add student details
3. If student details are not entered correctly
4. Display error message
5. If details are entered correctly
6. Save student details
7. Display student details in generate report window
8. End

7 Reflection

The Student Information System is developed using Visual Studio Community 2019. The logic that were used in this system reflects the real world working events. The task was to develop a system for an institution with a well responsive and user friendly UI.

Up until, I have not used visual studio before. While using visual studio for the first time it felt similar to NetBeans as both of them had drag and drop features. But after using visual studio, for couple weeks, it felt easier than other platforms in terms of drag and drop. It is arguably one of the best features that I have used as our coursework is based on dag and dropping elements in Windows Presentation Foundation (WPF). With the help of drag and drop feature, I can easily create the design of my kind. It is much reliable, faster, and accurate than coding.

After preparing all the design, it was time to implement methods to the designed textbox, datagrid and buttons. While creating and saving a new .xml of student details, it keeps making several root nodes. The main problem of this was it keeps on making different root node for each and every time a student is enrolled and his/her details is saved. After searching for many hours, I finally found out how to solve it through stack overflow and watching YouTube tutorials. None the less, the system was developed with simple but effective UI so that the user of any age group can use the system without any trouble.

Bibliography

Mahesh Chand, 2019. *Charting in WPF.* [Online] Available at: https://www.c-sharpcorner.com/uploadfile/mahesh/charting-in-wpf/ [Accessed 10 January 2020].