Application Development

CS6004NA

Coursework 1

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1. Introduction

This project is about the ‘Student Information System’ where the implement of the student record is done in the desktop application developed through C# programming language. The main view of this project is to keep track of the student’s details, program enrol and registration date.

1.1. Description

This desktop application is made so that the works done to keep student records. The idea of this system is implemented since a long period. Nowadays, the official work done to keep student records in schools, colleges through modern technology. Whereas, there as so many schools, colleges where they are done in paperwork’s. Hence, this project is a simple work handling desktop application where the student details, program enrol, and registration date record is tracked.

1.2. Objectives

The main objectives, function of this project is:

- To import a record from a text file (e.g. in .CSV format for bulk data input), or to allow manually inputting details like ID number, name, address, contact no, course enrol, registration date etc.
- To generate and display two different reports, listing the student’s detail like id, name, program enrol and registration date: (a) one sorted by student first name and (b) the other sorted by registration date.
- To display chart showing total number of students on each program (computing, multimedia, networking etc).
- Save and retrieve the student enrol status with the student details.

2. System Overview

2.1. User manual

a. Click the start button on Visual studio or open the Student Information System folder and open the DataHandler and open StudentInformationSystem.sln

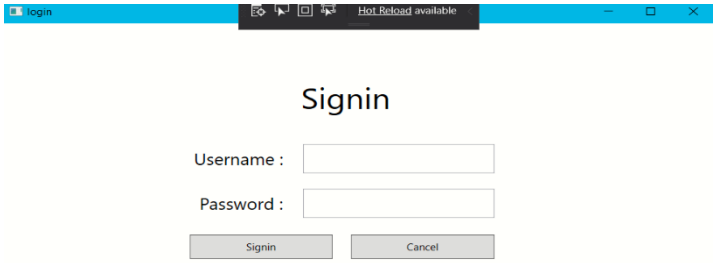


Figure 1: Login Screen

b. If the username and Password are entered incorrectly, the user cannot open the system. A warning message is shown.

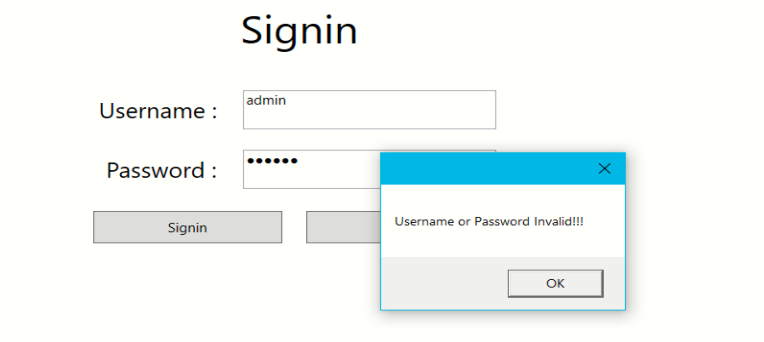


Figure 2: Login Form Error Message

c. After entering valid username and password, main form is open.

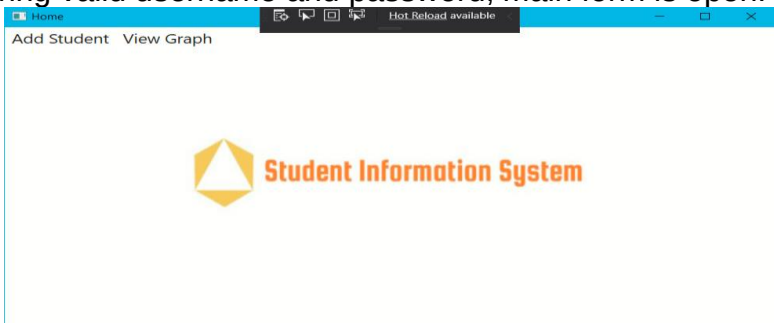


Figure 3: Index Form of the system

- A welcome message is displayed in the main screen of this system.
- Menu strip at the top will navigate through the system.

After Clicking the “Add Student” button student information page is open

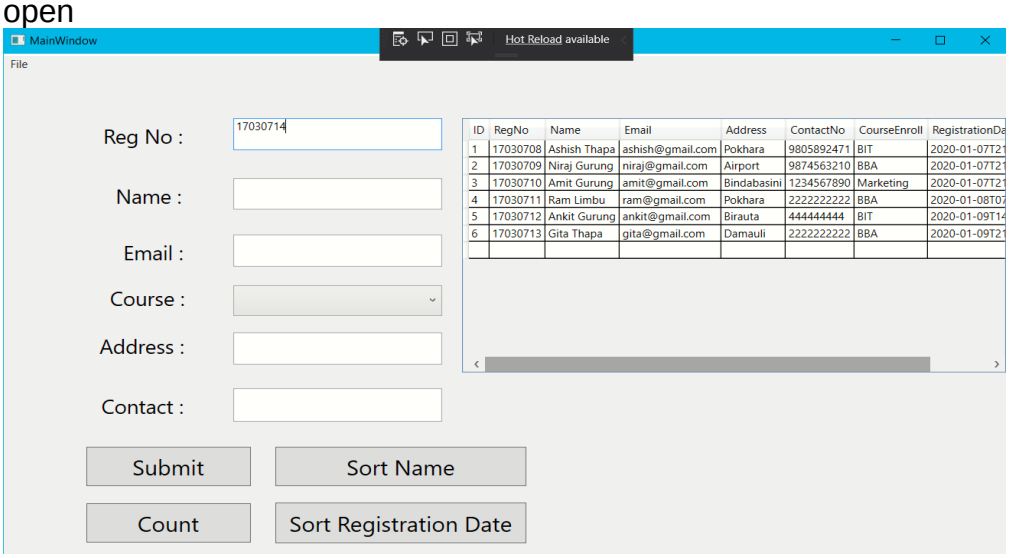


Figure 4: Student Record Page

- This page displays the previous entered data in the datagrid. Below the input text field there are buttons which have their own functionality which are described below:

i. **Submit**: Respective Input data of textfield is input to datagrid after clicking this button.

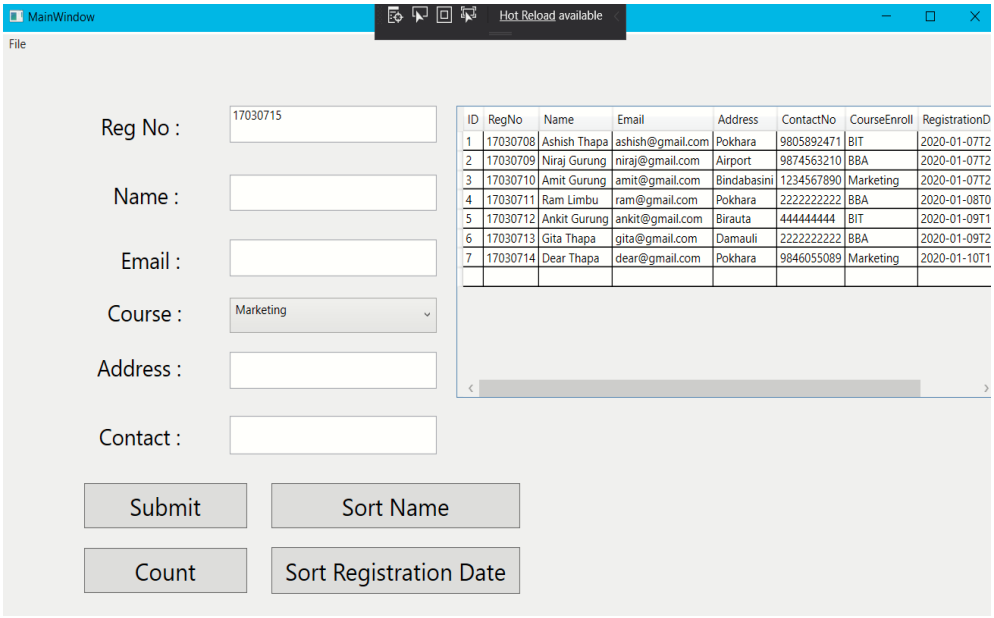


Figure 5: Submit

ii. **Sort Name**: The data present in datagrid is sort by alphabet after clicking this button.

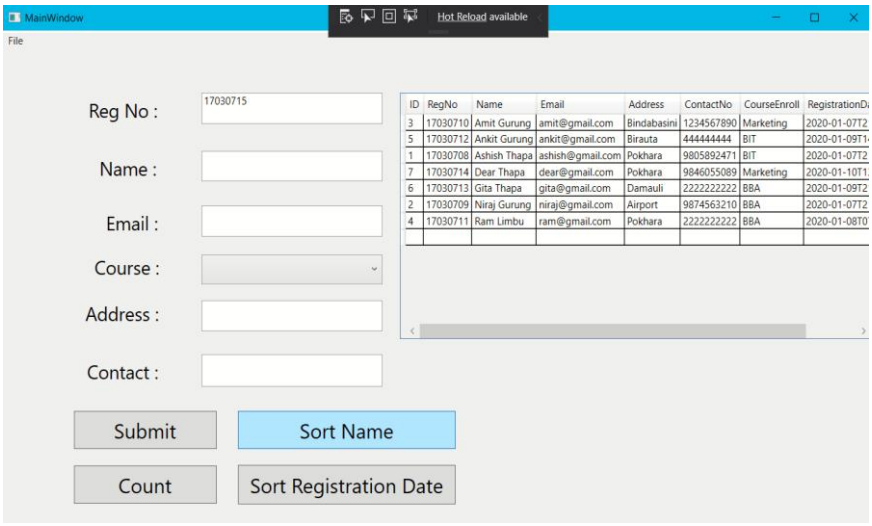


Figure 6: Sort Name

iii. **Submit Validation:**

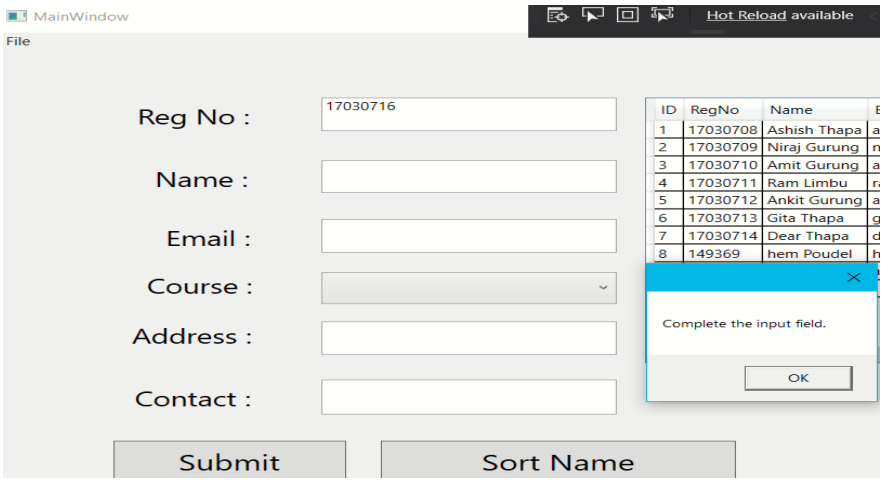


Figure 7: Empty Validation

iv. **Submit Validation:**

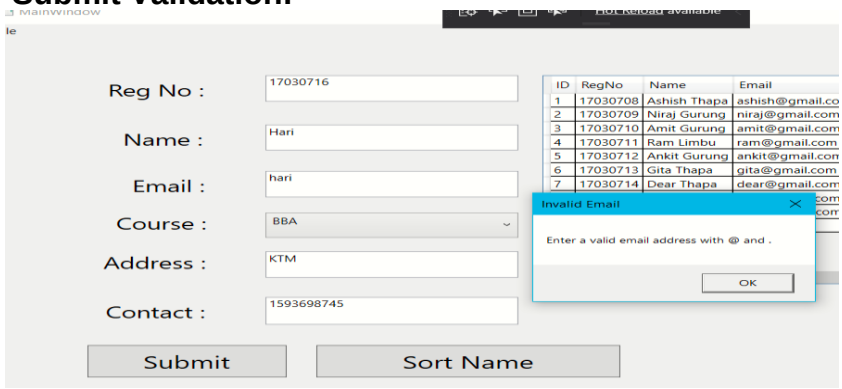


Figure 8: Email Validation

v. **Sort Registration Date**: The function of this button is to sort the data present in datagrid by sorted date.

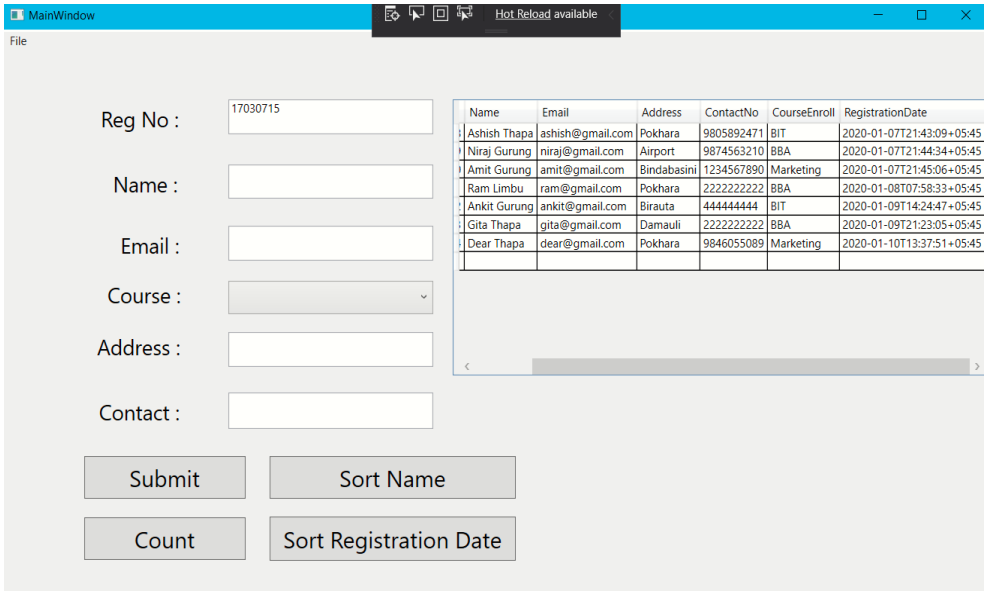


Figure 9: Sort Registration Date

vi. **Count**: The function of this button is to display total number of students on each program

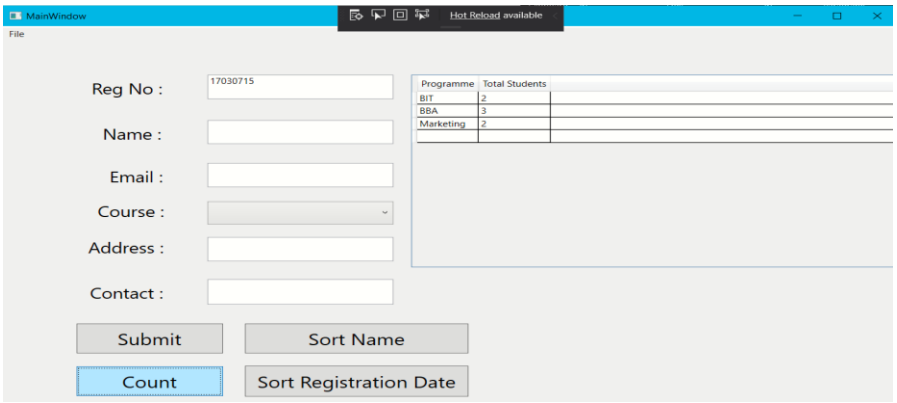


Figure 10: Count

a. After Clicking “View Graph” user can display chart showing total number of students on each program.

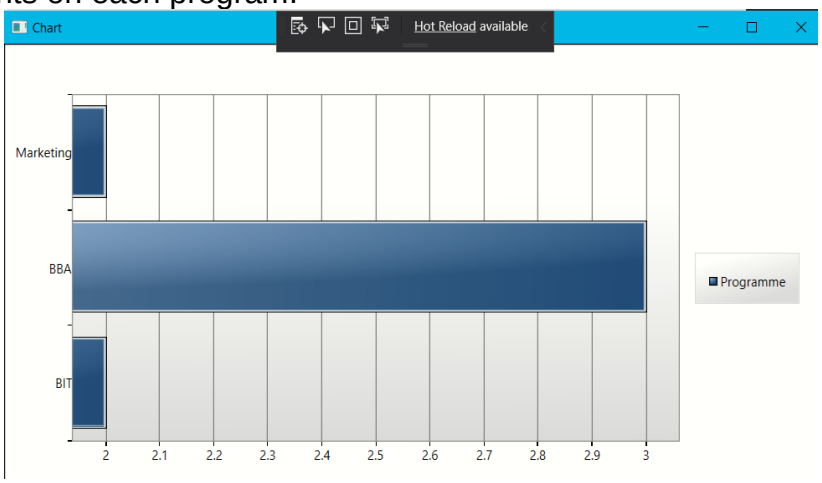


Figure 11: View Graph

b. Import

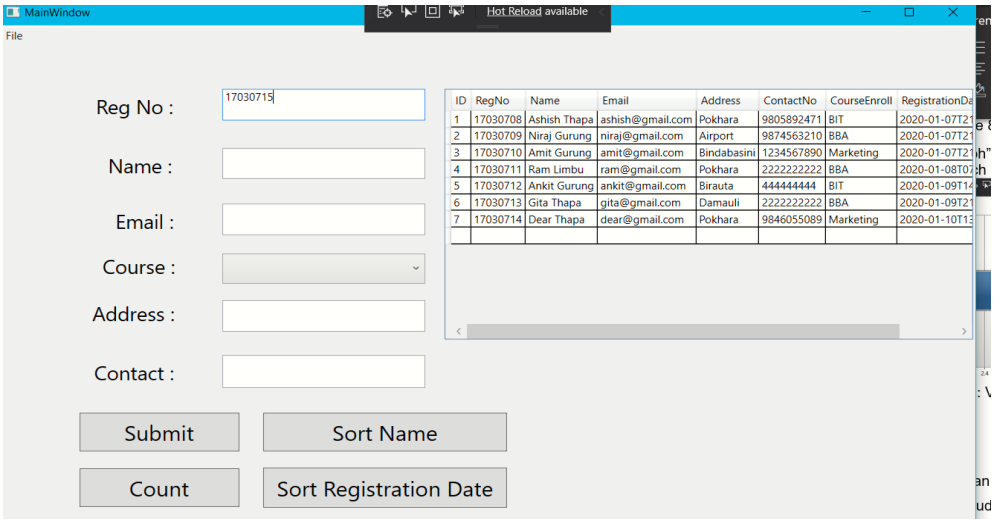
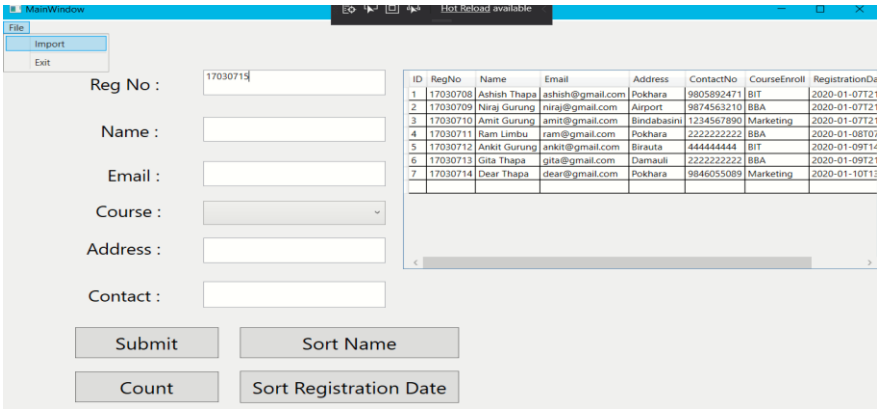


Figure 12: Before Import



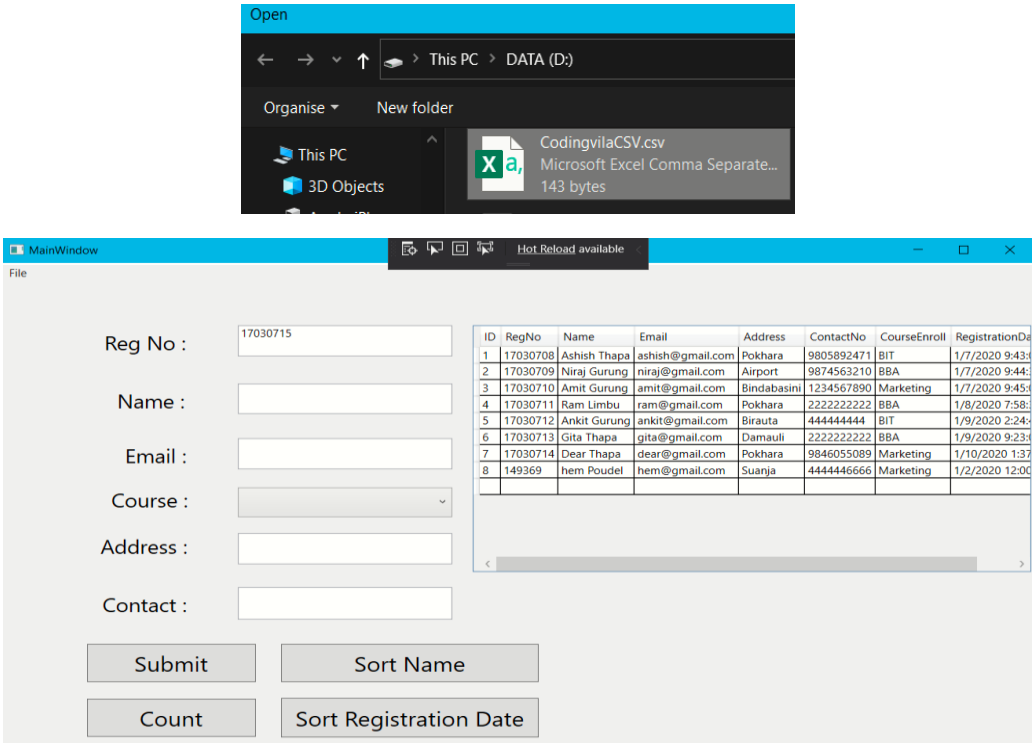


Figure 13: Import

2.2. Architecture

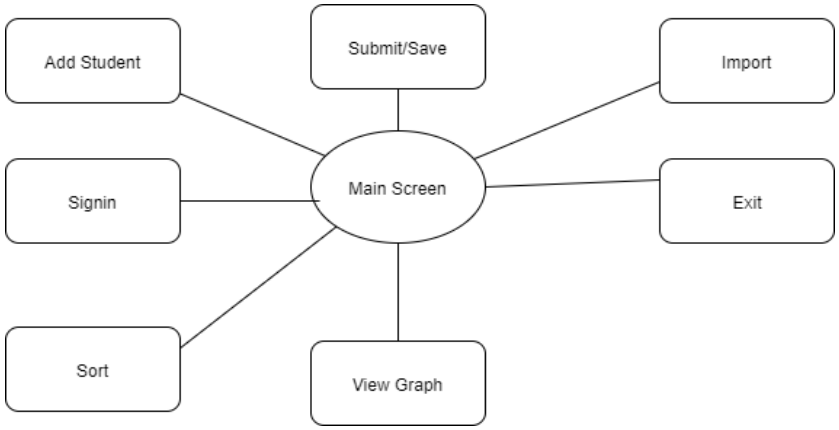


Figure 14: Architecture Diagram for Student Information System

This diagram of the architecture shows the system skeleton. Systems Architecture is a response to the conceptual and practical challenges of describing and designing complex systems (Golden, 2020).

The user must enter a correct username and password to enter the system. Thus, user can pick the menu at the top after entering the program user. This system includes student input detail and display graph chart showing total number of students on each program. Plus, save and retrieve the student enrol status with the student details.

2.3. Class Diagram

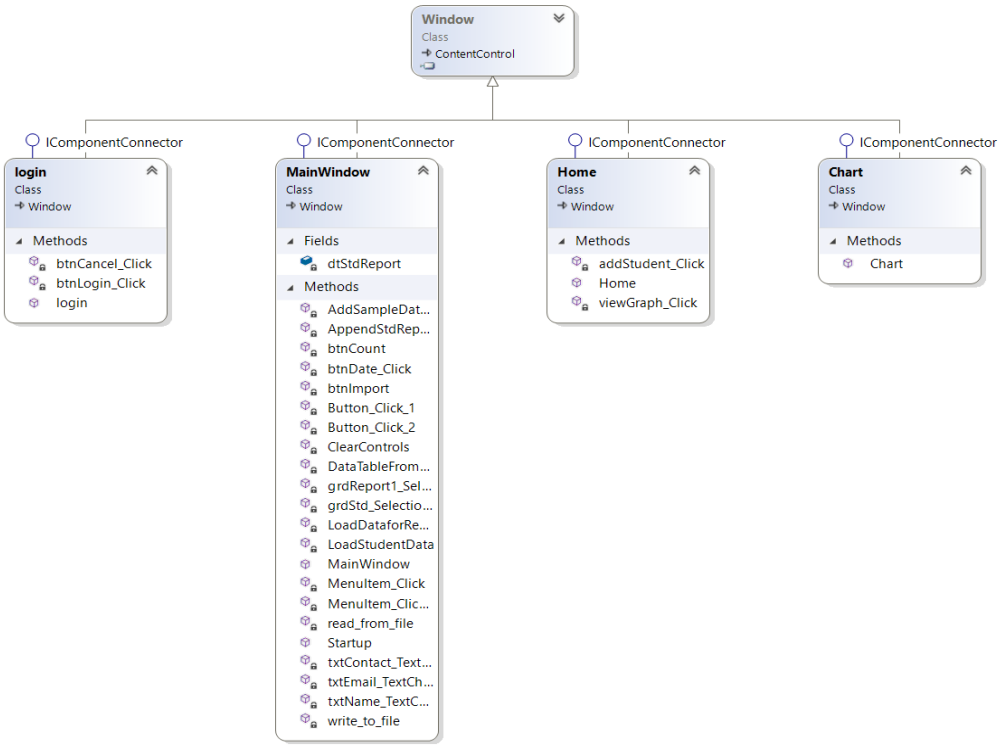


Figure 15: Class Diagram

This is the visual studio class diagram that shows all the class made to develop the system. No object can be made without classes, so classes are important to any system's development. Class diagrams are a key object in the development of object-oriented (OO) software, as they lay the basis for all subsequent design and implementation work. It follows that highlighting the quality of the class diagram can make a significant contribution to higher quality OO software systems (Marcela Genero, 2005).

Here are some of the descriptions of class diagram and their methods.

- ✓ Admin Login Form

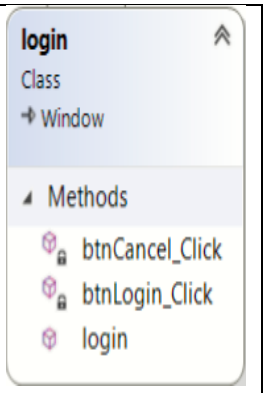
Method	Description	
btnCancel_Click	This method will close the admin panel and whole entire system.	
btnLogin_Click	This method help login to the system after correct input username and password.	

Table 1: Table for Admin Login Form

- ✓ Home Window

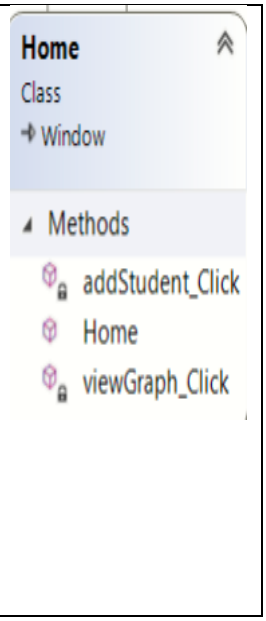
Method	Description	
addStudent_Click	This method opens the student input form window for entry data.	
viewgraph_Click	This method displays graph chart showing total number of students on each program.	

Table 2: Table for Home Window

✓ Main Window

Method	Description
Button_Click_1	This method validates the textfield and call the AppendStdReport method and write in data grid.
AppendStdReport	This method read the input field data and make an external xml file.
btnImport	This method imports the external csv file and write in data grid.
Button_Click_1	This method function is to sort the name by alphabetical order.
btnCount	This method displays total number of students on each program
btnDate_Click	This method function is to sort the data by registration date.

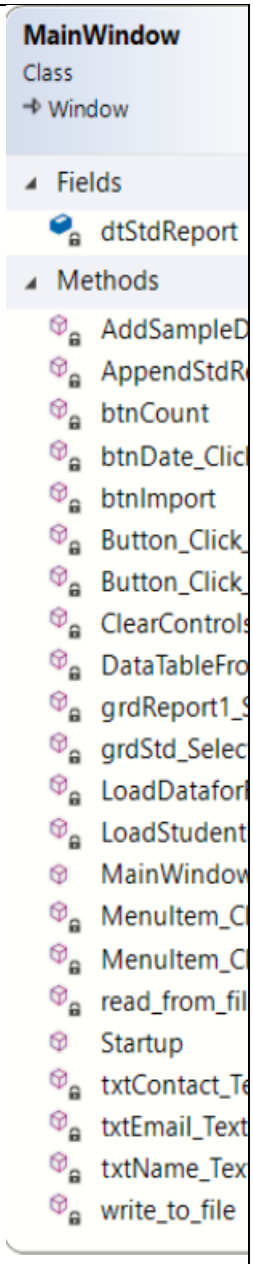


Table 3: Table for Main Window (i.e. Student Record)

✓ Chart

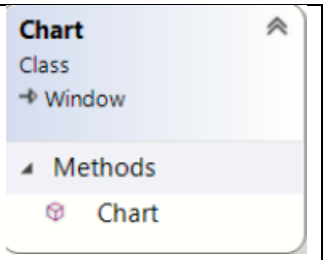
Method	Description	
Chart	Calls displayInChart method and generates bar diagram	

Table 4: Table for Chart

2.4. Flowchart

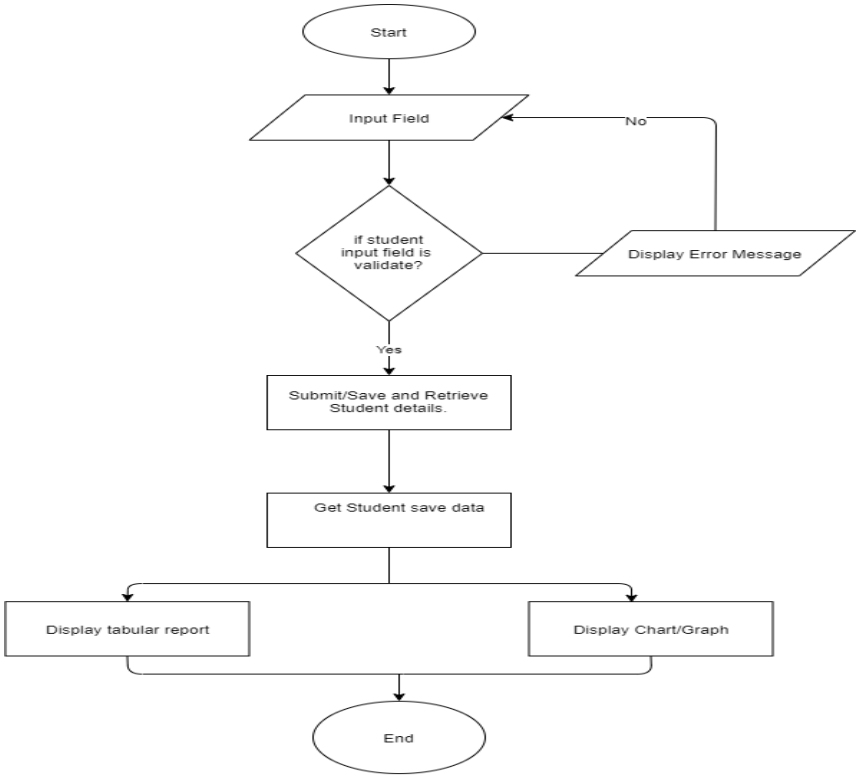


Figure 16: Flowchart diagram for this system

The experiment was conducted to determine whether the flowcharts improved the speed and efficiency of computer program debugging (D.J.Gilmore, 1983). This flowchart diagram shows the student input field data which will append first. If the input validation is failed again user have to re-fill. After submit/ save data system retrieve in its data grid. According to its system can display chart showing total number of students on each program. Lastly, a chart is created and shown into the windows.

3. Algorithm:

The SfDataGrid (DataGrid) control for WPF is used to display collection of data in rows and columns. SfDataGrid allows to sort the data against one or more columns either in ascending or descending order. When Sorting is applied, the rows are rearranged based on sort criteria.

Hence, I have used default sorting algorithm of DataGrid. The data is stored in ascending order using DefaultView.Sort property (Synfusion, 2001).

4. Journal Articles

a. The student information system is an integral part of the technology. This student information system handles all aspects of student data right from admission, class schedules, student enrollment, overall student performance, and student personal information. All of these elements are integrated into a single database, accessing and tracking any student's data with just a click of the mouse.

Yes, improving the efficiency of school administration and managing student data is effortless and easy with the Student Information System software. This system can be customized to cover a wide range of activities. It can be easily accessed at any time. Schools can run the Student Management Information System on minimal hardware and have the competitive advantage of using the latest equipment (StateUniversity, 2016).

b. At present, there are many college students, so the identification and verification of student identity information always occur in the campus, as well as the corresponding services given by the students' identification. Therefore, safe and efficient student information management, convenient identification to obtain the required service, and safe and reliable information transmission have become an important task for the student information management.

   The system is mainly composed of two parts: terminal and host computer. The terminal is composed of fingerprint identification module and micro controller. The host computer can use personal computers or large servers according to the number of users, and the management of student information database uses SQL Server (Pengtao Yang, 2017).

5. Reflection

"Student Information System" is an application for the windows model that is being developed to record student information and entry programme details. This framework is built in the free software version of the Microsoft Visual Studio 2019 Community Version. The user can easily navigate through the program because of the simple user interface.

Using Visual Studio as IDE, the entire task is based on the C # language. Because this application is new to us in the development because we have not built any application. Exploring the new IDE is therefore beneficial for us, we can now use this IDE better. In order to complete this framework, I must do a lot of sketch research for UI design, references from books, journals and websites described in the reference page below. Hope this purpose-based system will help a student information to keep its data secure and accurate.

I have a lot of errors and problems related to the new IDE and the newly suggested language C # during the development phase. I get more flexibility for programming after seeing these problems and error. So, I really want to thank my tutor and my friends to complete this plan.

6. Conclusion

Lastly, I have come to conclusion after completing the system. It is a computerized system that helps keep a record of student information. I've got to know about the description of any student information system by designing this method. Perhaps in the coming days, this application will help in many ways. Not only does this application record student statistics, but it can also trace tabular report showing total number of students enrolled so far in each program offered by the institution. This would be useful for that student's data collection depending on number of student and programme.

I have many mistakes and problems when designing this program, but I also consider the methods to solve them, so I have a great opportunity to address these errors. This can help solve these mistakes in my future work.

References

D.J.Gilmore, H., 1983. An investigation of the utility of flowcharts during computer program debugging.. *International Journal of Man-Machine Studies,* 20(4), pp. 357-372.

Golden, B., 2020. *What is Systems Architecture ?.* [Online] Available at: https://www.lix.polytechnique.fr/~golden/systems_architecture.html [Accessed 02 01 2020].

Marcela Genero, M. P. a. C. C., 2005. A Survey of Metrics for UML Class Diagrams. *Journal of Object Technology,* Volume 4, p. 9.

Pengtao Yang, G. S. J. H. P. Z. a. J. L., 2017. A Student Information Management System Based on Fingerprint Identification and Data Security Transmission. *Journal of Electrical and Computer Engineering,* p. 6.

StateUniversity, S. I. S. f. K., 2016. Student Information System for Kalinga StateUniversity. *International Journal of Management and Commerce Innovations,* 4(1), pp. 330-335.

Synfusion, 2001. *Synfusion.* [Online] Available at: https://help.syncfusion.com/wpf/datagrid/sorting [Accessed 10 01 2020].