Application Development

CS6004NP

Coursework 1

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Submitted To:

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Application Development

Abstract

This is an individual course work for the module "Application Development" for Student Information System which is developed using Visual Studio Platform using C# language .With the great contribution of Mr. Ishwor Sapkota the course work was completed within the time frame.

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1. Introduction

In this coursework of the module "Application Development" we are asked to model a desktop application for Student Information System. The features and functions required to complete the system are fulfilled. The application must allow the user to input the student personal detail including registration date so that a system can generate a weekly enrolment report of the student. System must include detail like Name, address, contact no, email, program enrol, registration date. For security purpose there's login system application through which only the authorized user can get access to the system and data.

The following are the key functional features of the application:

- Login
- Enroll Students
- Import CSV file
- Report sorted by student first name and registration date
- Weekly Report
- Chart

2. User Manual

The steps and instructions mentioned below are to be followed to make the system run successfully.

2.1 Login

This is the first page of the application login will prompt for username and password. By providing correct username and password user will get access. If the password and username is incorrect system will give two more chances to login.
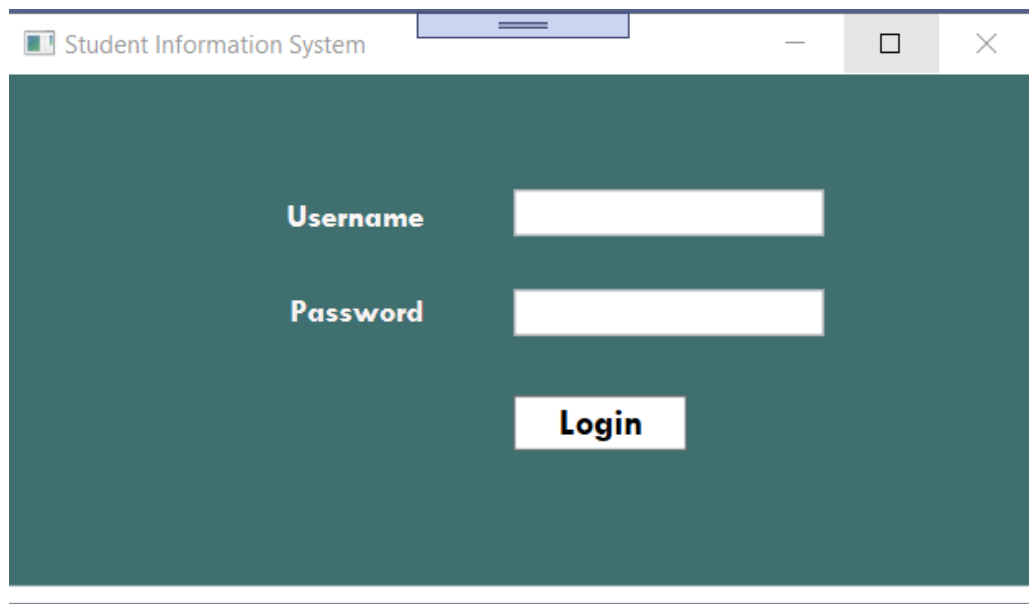

Figure 1: Login Form

If user inputs wrong username and password, error message is displayed. So, user has to enter correct username and password.
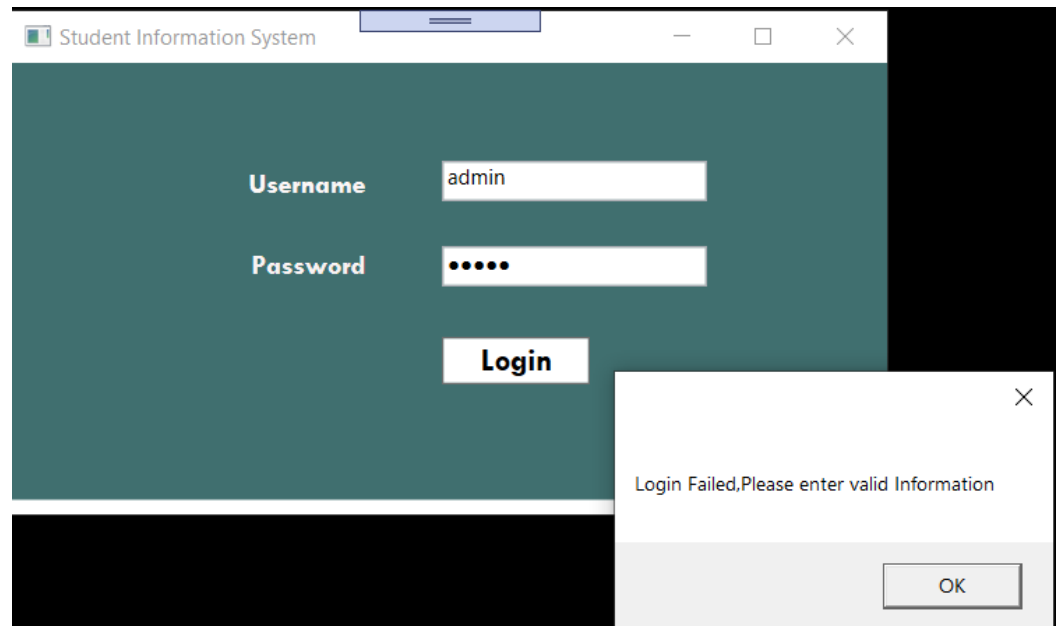

Figure 2: Error Message for attempting wrong username or password.

2.2 Home

After successfully login, this is the home page of the application. This page is the main page of the system as all the tasks are performed from this task. Through this page we can get access to other pages. The main screen provides five service which are Enroll Student, Import, Report, chart and weekly report section.
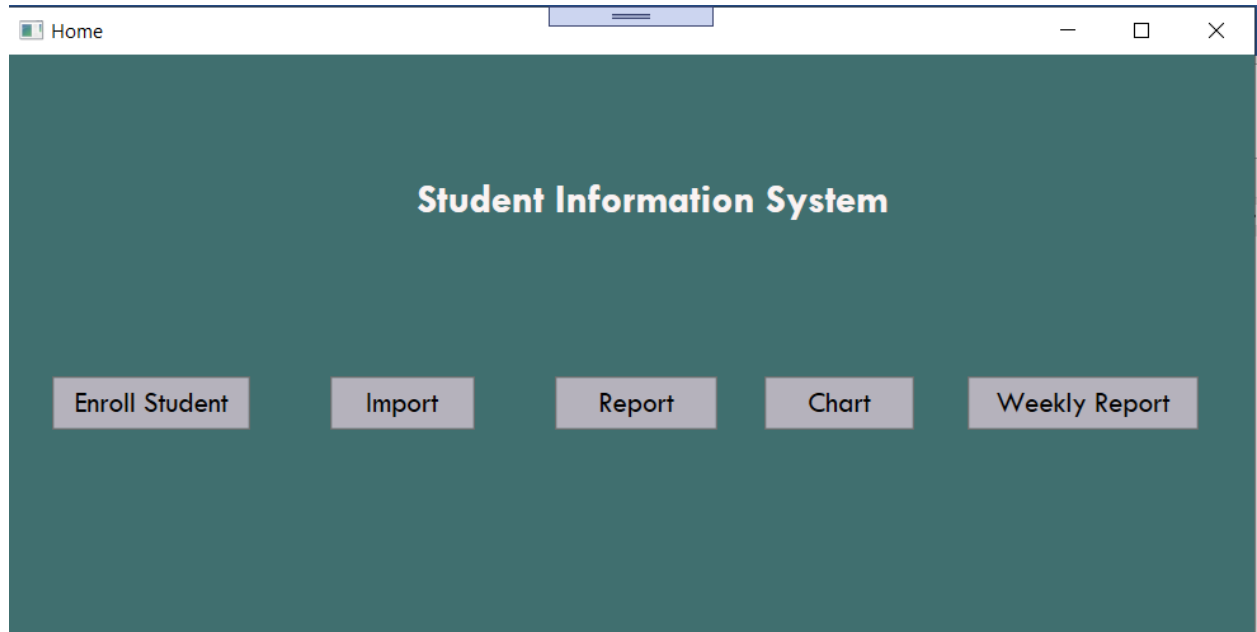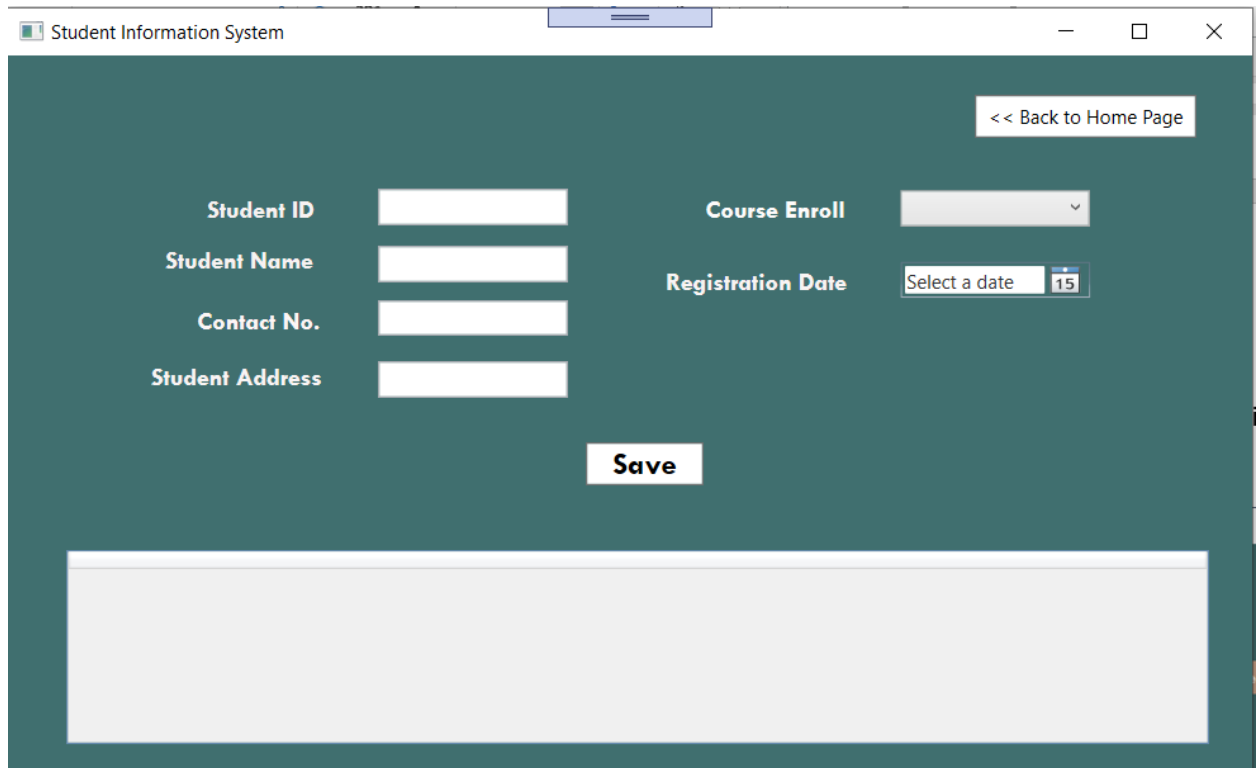

Figure 3: Home Page

2.3 Enroll Student

Enroll student add the data of the students which will be shown in the below grid view and save the data it in a xml format.

Figure 4: Form of Enroll Student

Figure 5: Student Enroll

2.4 Import

This is the design of an import page where the data of an students saved in a CSV format is imported.
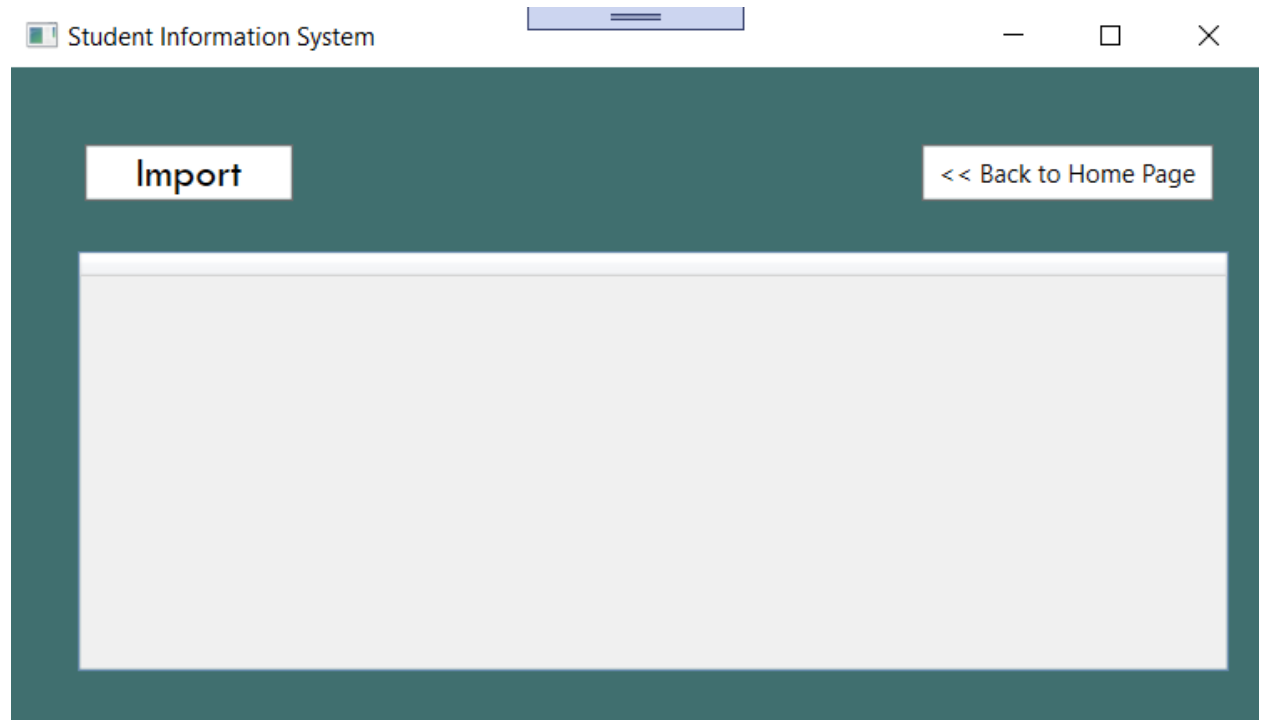
Figure 6: Import
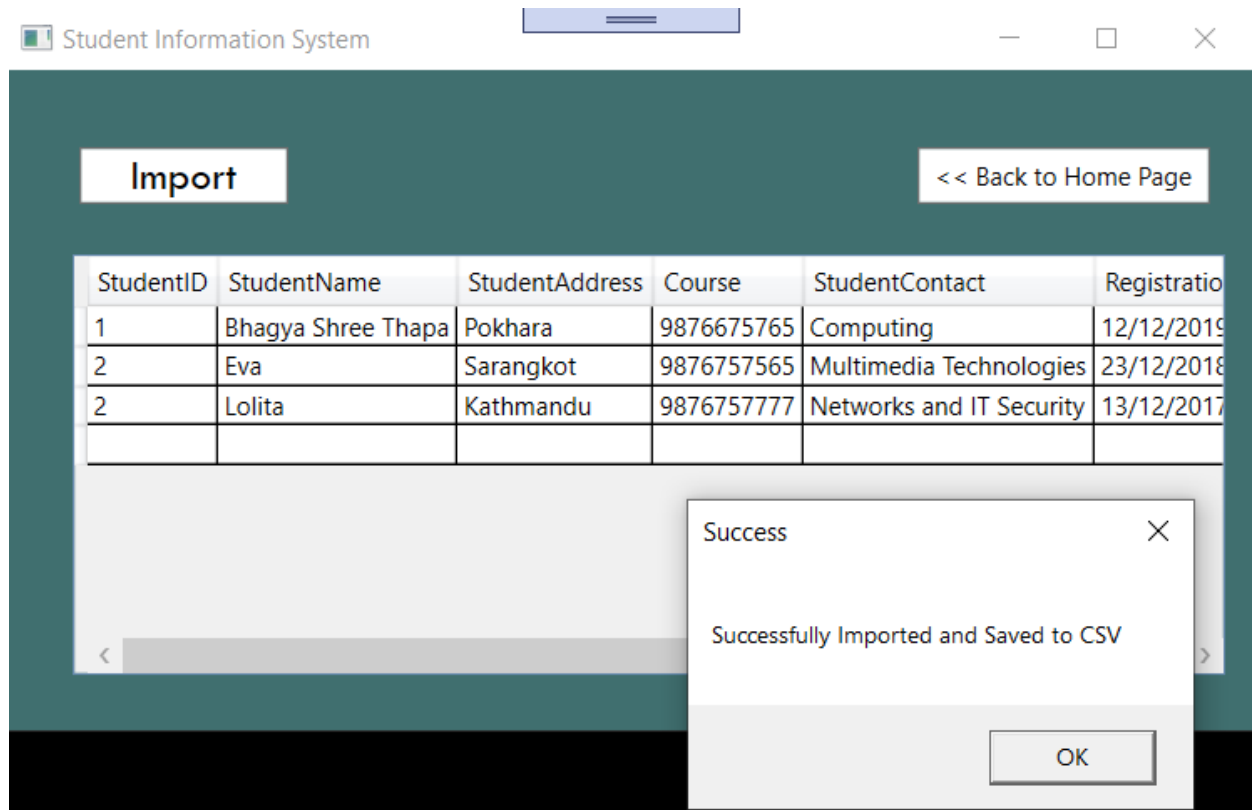
Figure 7: Importing data from CSV file

Figure 8: Details saved in CSV file

2.5 Report

Student's details will be shown sorted by first name and registration date
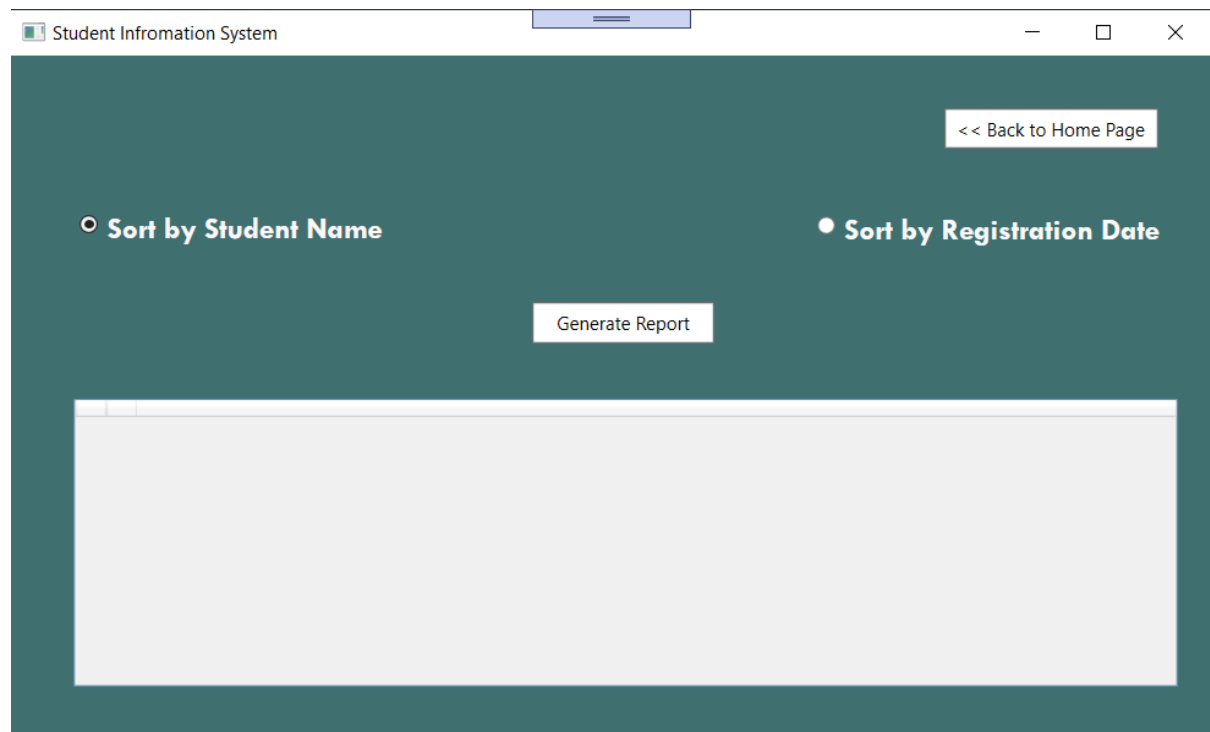
Figure 9: Report

Figure 10: Generated report by students first name

Figure 11: Generated report by registration date

2.6 Weekly Report

This page will show the total number of the students who select same given course.
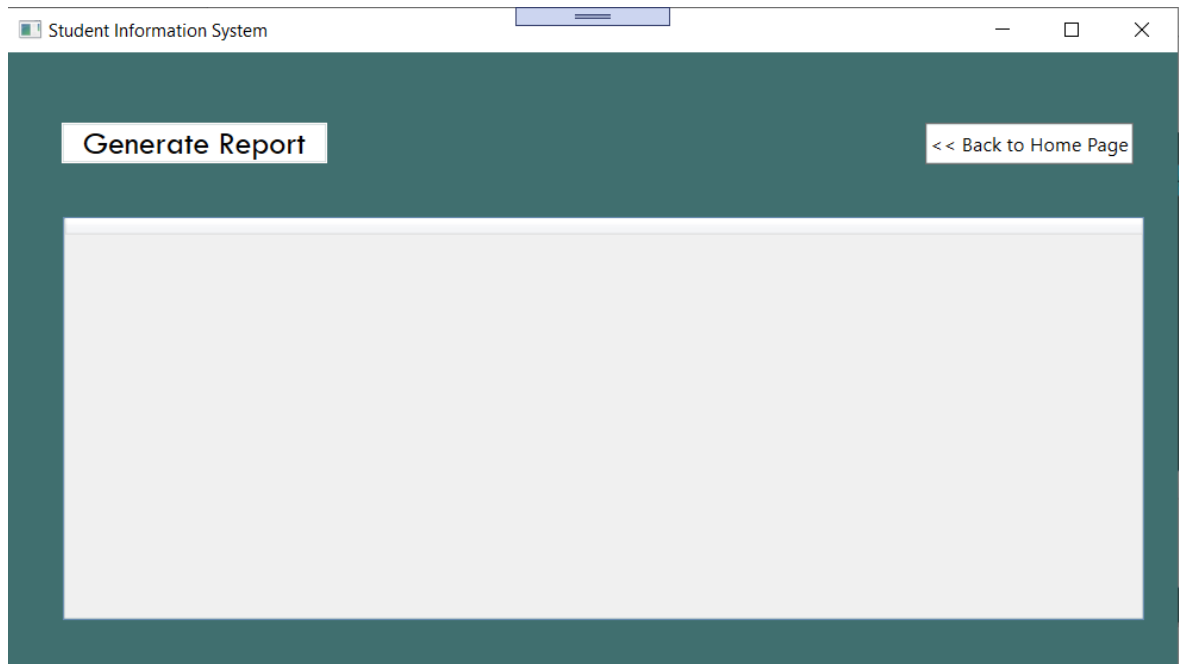
Figure 12: Design of Weekly Report

Programme	TotalStudent
Computing	3
Multimedia Technologies	5
Networks and IT Security	4
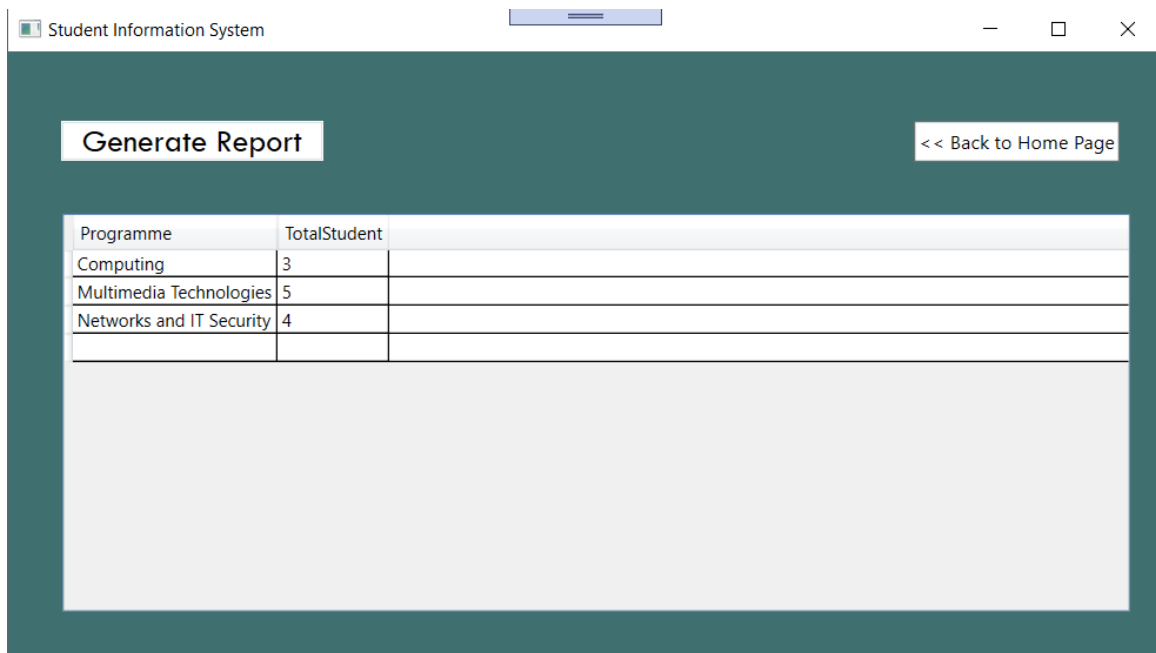
Figure 13: Data of weekly report

2.7 Chart
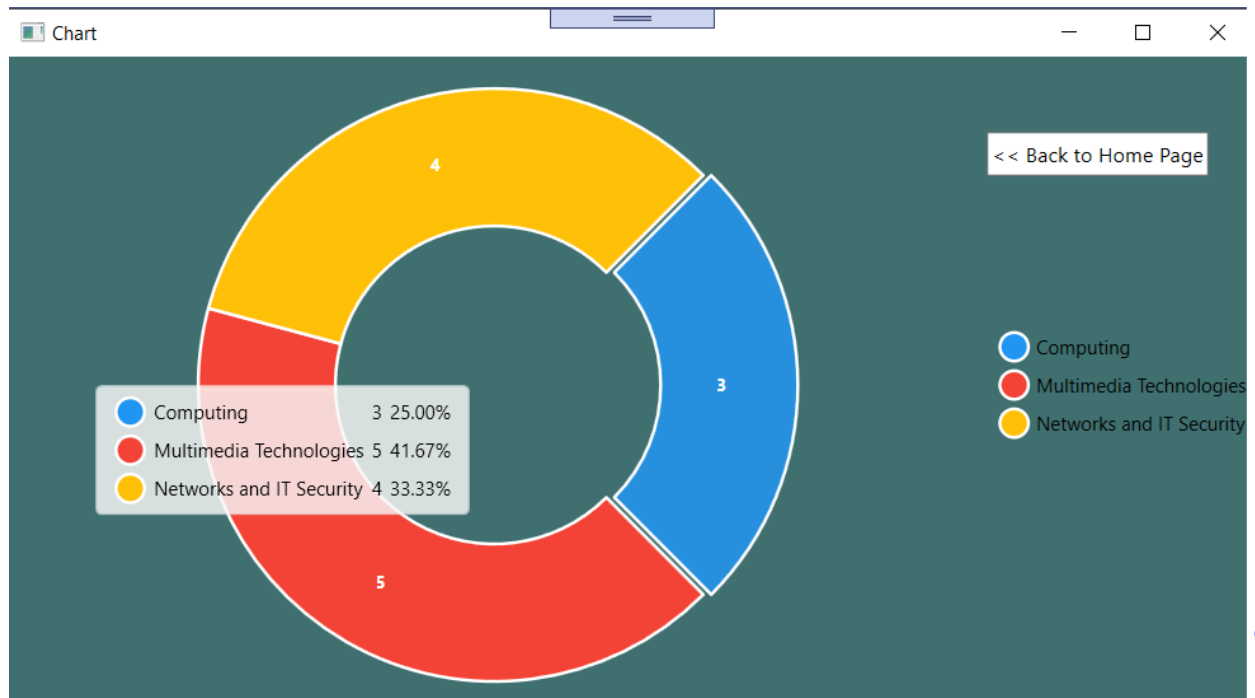
Figure 14: Graphical Representation (Doughnut pie-chart)

3. System Architecture

In the given figure, architecture of the student information system is visualized, as the first step shown is to login into the system for this user need to input correct username and password. Then the user enter the main part of the system Home, It consists all the major activities to be taken in the system like enroll student, Import, report, Chart, Weekly Report.
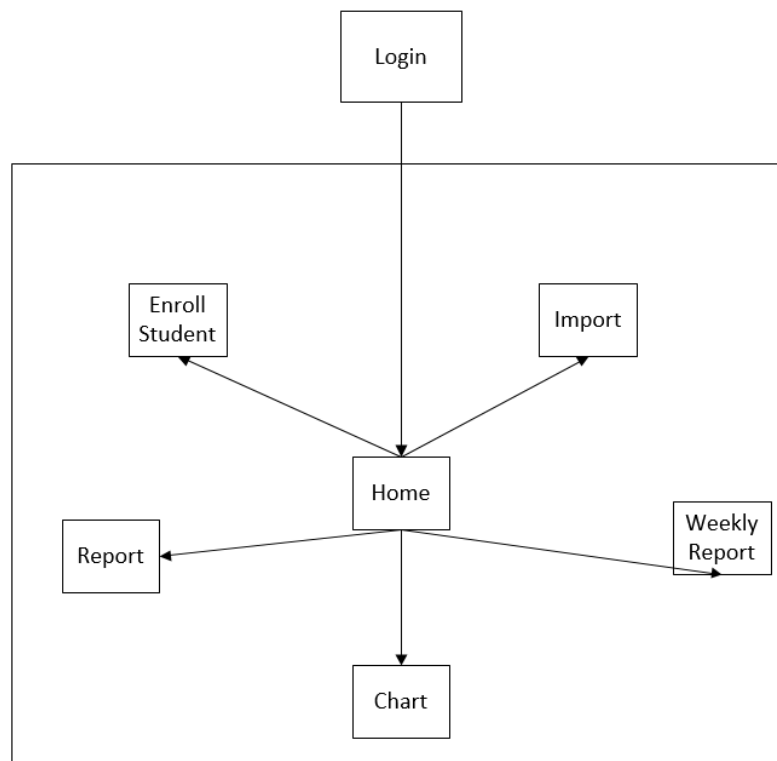
Figure 15: Diagram representing system architecture for Student Information System

4. Description of Classes Properties and Methods

1.   MainWindow Class

It handles the login function.

Method	Description
Login	Login button on login page helps to open main menu if correct username and password is entered.

Table 1: Login

2.   Home Class

Method	Description
Button_Click_1	Clicking on this button opens Enroll Students
Button_Click_2	Clicking on this button opens Import
Button_Click_3	Clicking on this button opens Report
Button_Click_4	Clicking on this button opens Chart
Button_Click_5	Clicking on this button opens Weekly Report

Table 2: View Home Page

3.   Enroll Students

Method	Description
save_studentsDetails	Save button will save all the Student details input in a .csv format
Button_Click	Clicking on this button go back to the Home page

Table 3: View Enrol Students

4.   Import class

Method	Description
Button_Click	This Import button will import the file in .csv format
Button_Click_1	Clicking on this button go back to the Home page

Table 4: View Import class

5.   Course Chart Class

Method	Description
Button_Click	Clicking on this button_click go back to the Home page

Table 5: View: Course Chart class

6.   Weekly Report class

Method	Description
Button_Click	Clicking on this button_click go back to the Home page
Button_Click_1	Generate the details of total number of students added in course enroll

Table 6: Weekly Report class

7.   Report class

Method	Description
RadioButton_Checked	Sort the data of the user by name
RadioButton_Checked_1	Sort the data of the user by registration date
Button_Click_1	Clicking on this button_click go back to the Home page
Button_Click	Generate the user data according to clicking in the radio buttons

Table 7: Report class

5. Sorting Algorithm

LINQ stands for Language Integrated Query. LINQ is a data querying API with SQL like query syntaxes. The beauty of LINQ is it provides the ability to *.NET* languages (like C#, VB.NET, etc.) to generate queries to retrieve data from the data source. For example, a program may get information from the student records or accessing employee records, etc. In, past years, such type of data is stored in a separate database from the application, and you need to learn different types of query language to access such type of data like SQL, XML, etc. And also you cannot create a query using C# language or any other *.NET* language. (ankita_saini, 2018)

Advantage of LINQ

1. LINQ offers an object-based, language-integrated way to query over data no matter where that data came from. So through LINQ we can query database, XML as well as collections.
2. Compile time syntax checking
3. It allows you to query collections like arrays, enumerable classes etc in the native language of your application, like VB or C# in much the same way as you would query a database using SQL (Dwij, 2019)

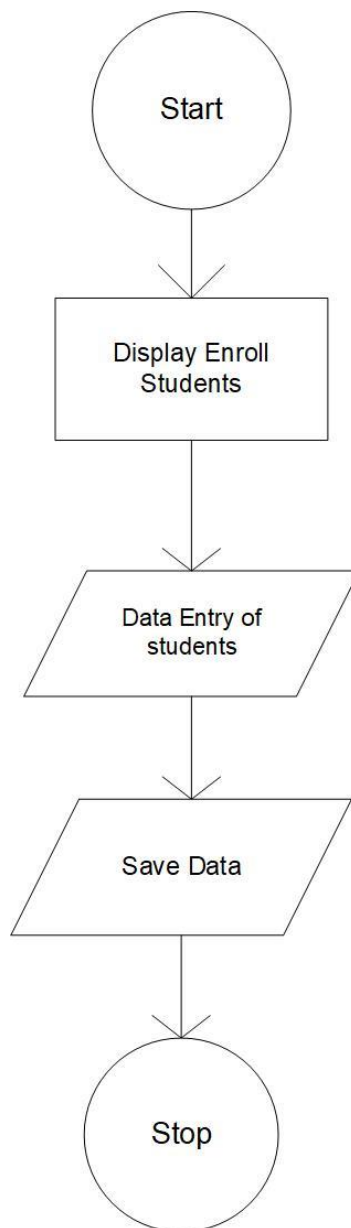## 6. Flowchart

Figure 16: Flowchart of student enrolment Dataflow

7. Algorithm

    Step 1: Start

    Step 2: Display the Enroll Students page

    Step 3: Enter the data in the form as per required

    Step 4: Save the data

    Step 5: End

8. Reflection

"Student Information System" has been carried out using Visual Studio 2019 with the C# language. This system seems to give great performance. The logic used in the system reflects the real working environment.

About the system, this can perform the entire task proposed in the question. This system allow the user to input the data of the students and save the data in the .CSV file. It generate the report one sorted by the student name and another by the registration date. In addition to that a user can check the weekly report is build showing the total number of students enrolled in each program which is also shown in the graphical representation form (Doughnut Chart).

9. Conclusion

This application "Student Information System" is successfully finished. Each function required for the application was represented on the application and they all work perfectly. This is our first project, or this is the first time that we worked in visual studio with C# .net framework. So, I faced many problems during coding. But, with the help of our teacher and friends, I completed this project successfully on time. While doing coding there were numerous bugs and blunder. I overcome each error one by one. I used to do online research to fix errors. I did a lot of research on C# and visual studio platform during this coursework and I got a chance to learn many things.

6. References

ankita_saini, 2018. *GreeksofGreeks.* [Online]
Available at: https://www.geeksforgeeks.org/linq-language-integrated-query/
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Dwij, D., 2019. *C#Corner.* [Online]
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[Accessed 10 1 2020].

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