

Informatics College Pokhara



Application Development

CS6004NP

Coursework 1

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Application Development

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1. Introduction

We have designed the Student Informatics System which takes the Student details as input and saves that in the table so that later on we can retrieve data from it as well as use it in other tables. Also we can sort the table according to the Registration and Student Name which will be helpful to make table more useful and easier to navigate.

Other more additional features are in the program:

Current.Scenario

We have many Student management system currently in the market which are quite traditional and hard to use. They were made with old code and are bulky hard to use and navigate.

Proposed.System

We are providing a new Student Management System so that we can hopefully solve all the existing problems that are in the old system. We are planning to make it more flexible and easier to use to all the people.

2. User Manual

Below are provided screen shot along with some description so that user can have a knowledge on how the system works.

2.1. Login Screen

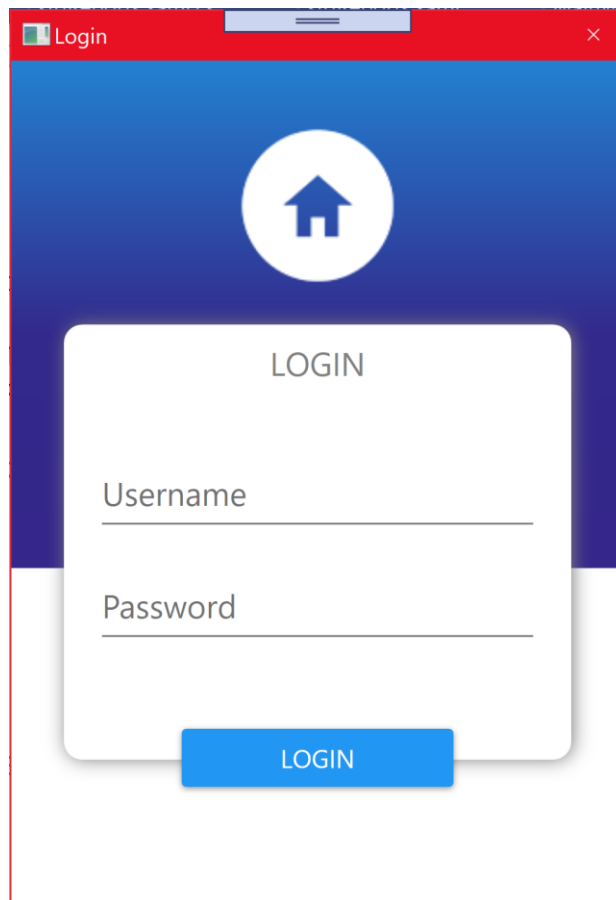


Figure 1: Login Screen

When first user enters into the system, he or she has to enter user name and password which are “admin” and “admin” by default respectively.

2.2. Dashboard

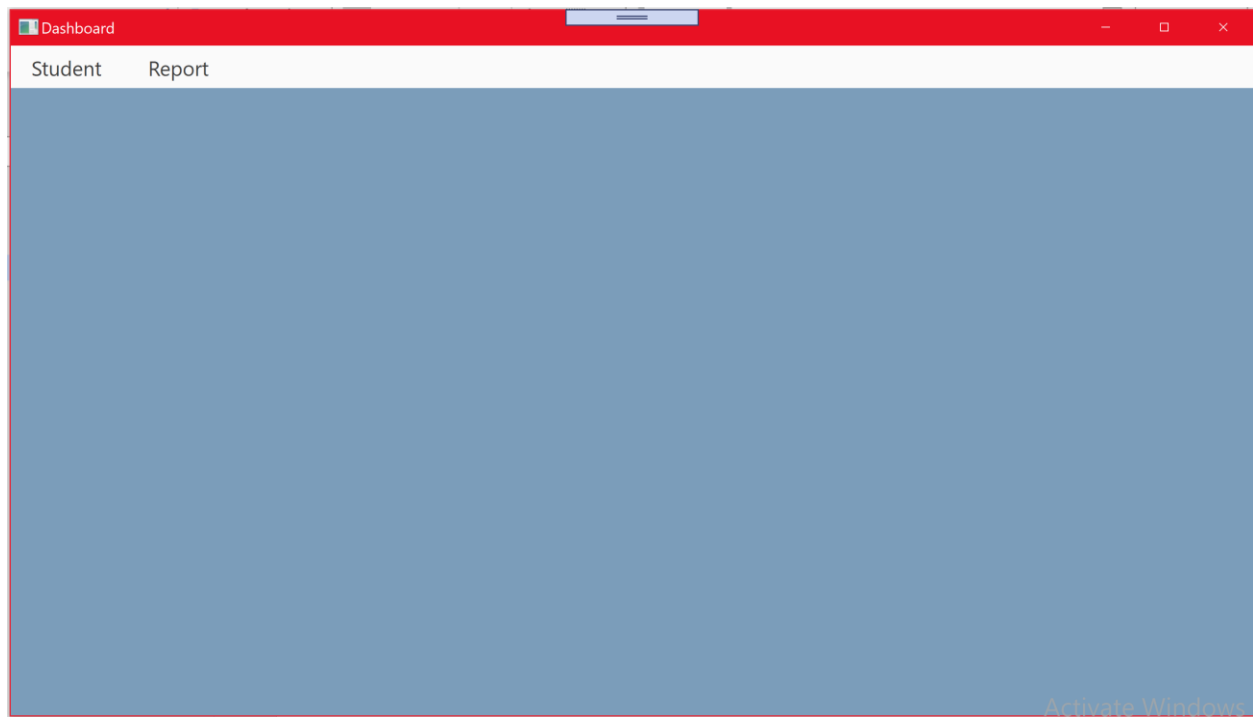


Figure 2: Dashboard

After successful login user will see the main screen.

2.3. Add Student Details Screen

The screenshot shows a web application window titled 'Dashboard'. It has two tabs: 'Student' (selected) and 'Report'. The 'Student' tab contains a form with the following fields:

- ID:
- First Name:
- Last Name:
- Address:
- Contact No.:
- Course Enrol:
- Registration: (with a calendar icon)

A blue 'Register' button is located at the bottom right of the form. Below the form is a table with the following headers:

ID No	First Name	Last Name	Address	Contact No	Course Enrolled	Registration Dat
-------	------------	-----------	---------	------------	-----------------	------------------

The table body is currently empty.

Figure 3: Add Student Details Screen 1

The screenshot shows the same web application window, but now the form fields are populated with the following data:

- ID:
- First Name:
- Last Name:
- Address:
- Contact No.:
- Course Enrol:
- Registration: (with a calendar icon)

The blue 'Register' button is still present. The table below the form now contains one row of data:

ID No	First Name	Last Name	Address	Contact No	Course Enrolled	Registration Dat
1	bishal	dhital	rambazar	9860255164	Artificial Intelligence	1/15/2020

Figure 4: Add Student Details

People can add student data to enroll the student in the table with the help of the student info that can be found in the menu tab.

2.4. Data Serialize and Added to Screen

The screenshot shows a web application interface with a 'Dashboard' tab. Below the tab, there are two sections: 'Student' and 'Report'. The 'Student' section contains a form with the following fields:

- ID: 1
- First Name: bishal
- Last Name: dhital
- Address: RAMbazar
- Contact No.: 9860255164
- Course Enrol: Artificial Intelligence
- Registration: 1/15/2020

A blue 'Register' button is located at the bottom right of the form. Below the form, there is a table with the following data:

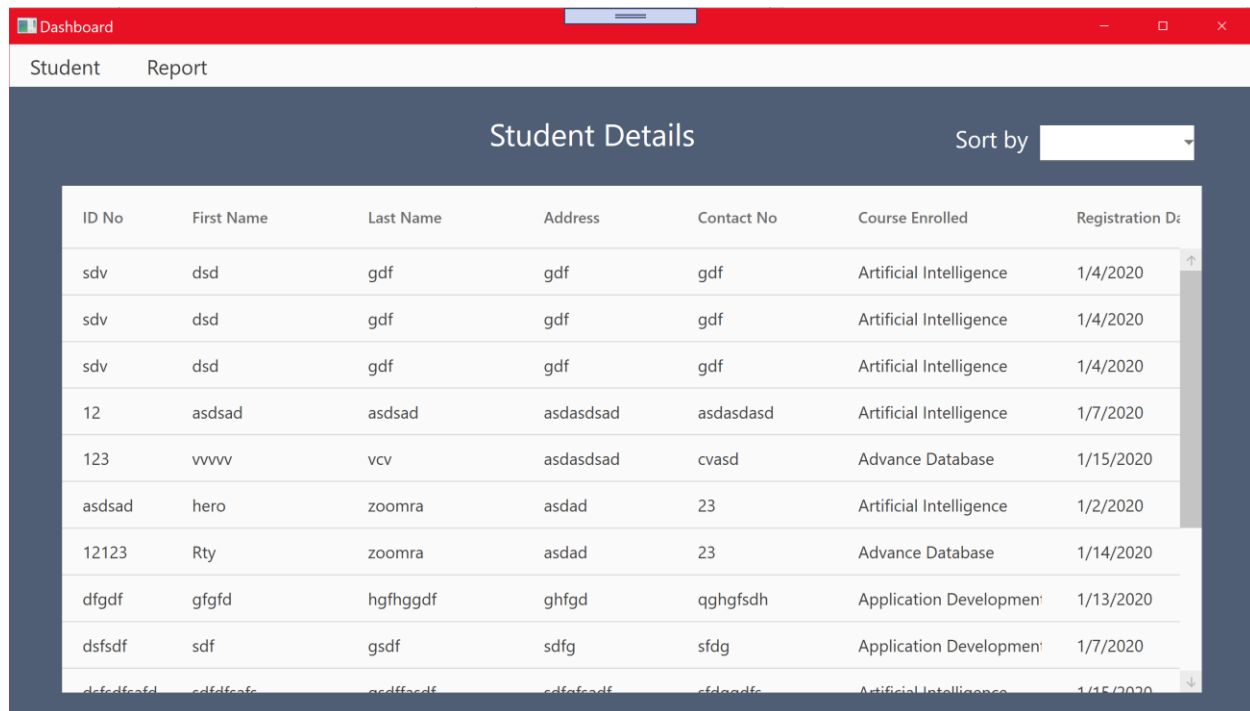
ID No	First Name	Last Name	Address	Contact No	Course Enrolled	Registration Dat
1	bishal	dhital	RAMbazar	9860255164	Artificial Intelligence	1/15/2020

A red dialog box with a white border and a red header bar is displayed in the center of the screen. The dialog box contains the text 'Data successfully saved and added to the XML' and an 'OK' button.

Figure 5: Data Serialize and Added to Screen

We can serialize that data or save the data in the csv file with the help of save button in the field.

2.5. Deserialization of Data



Dashboard

Student Report

Student Details Sort by

ID No	First Name	Last Name	Address	Contact No	Course Enrolled	Registration Date
sdv	dsd	gdf	gdf	gdf	Artificial Intelligence	1/4/2020
sdv	dsd	gdf	gdf	gdf	Artificial Intelligence	1/4/2020
sdv	dsd	gdf	gdf	gdf	Artificial Intelligence	1/4/2020
12	asdsad	asdsad	asdasdsad	asdasdasd	Artificial Intelligence	1/7/2020
123	vvvv	vcv	asdasdsad	cvasd	Advance Database	1/15/2020
asdsad	hero	zoomra	asdad	23	Artificial Intelligence	1/2/2020
12123	Rty	zoomra	asdad	23	Advance Database	1/14/2020
dfgdf	gfgfd	hgfhggdf	ghfgd	qghgfsdh	Application Development	1/13/2020
dsfsdf	sdf	gsdf	sdfg	sfdg	Application Development	1/7/2020
dfedfsefd	edfsefde	edfsefde	edfsefde	edfsefde	Artificial Intelligence	1/15/2020

Figure 6: Deserialization of Data

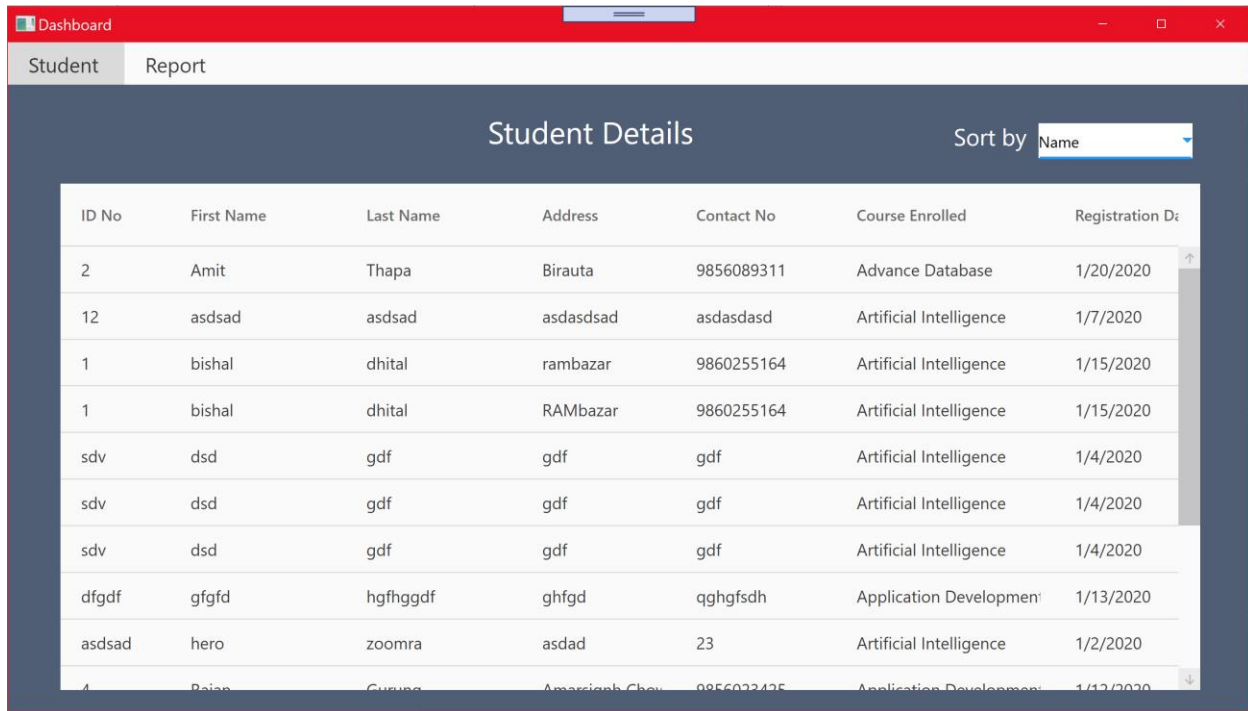
We can also deserialize the data with the help of import function that can be found in the Student Details.

Many error handling is taken place in the data field to ensure only valid data can be passed in the system for example if we try to enter string in the contact number field it will display an error.

2.6. Data Sorting

A sorting option is available in the menu of the system so that people can sort them in their desired order. Right now it only has 2 basic sorting option available.

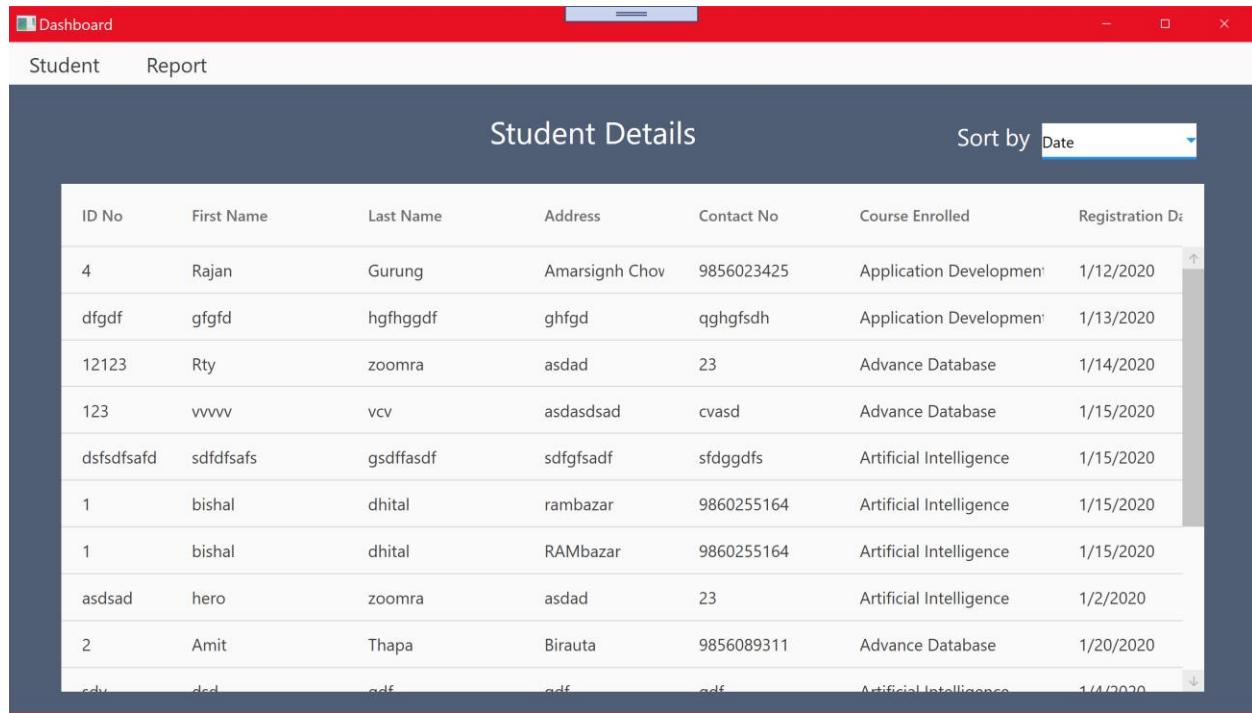
2.6.1. Sorting By name



ID No	First Name	Last Name	Address	Contact No	Course Enrolled	Registration Date
2	Amit	Thapa	Birauta	9856089311	Advance Database	1/20/2020
12	asdsad	asdsad	asdasdsad	asdasdasd	Artificial Intelligence	1/7/2020
1	bishal	dhital	rambazar	9860255164	Artificial Intelligence	1/15/2020
1	bishal	dhital	RAMbazar	9860255164	Artificial Intelligence	1/15/2020
sdv	dsd	gdf	gdf	gdf	Artificial Intelligence	1/4/2020
sdv	dsd	gdf	gdf	gdf	Artificial Intelligence	1/4/2020
sdv	dsd	gdf	gdf	gdf	Artificial Intelligence	1/4/2020
dfgdf	gfgfd	hgfhggdf	ghfgd	qghgfsdh	Application Development	1/13/2020
asdsad	hero	zoomra	asdad	23	Artificial Intelligence	1/2/2020
4	Bajan	Curung	Amarsingh Chou	9856032425	Application Development	1/12/2020

Figure 7: Sort Data by Name

2.6.2. Sorting by Registered Date



Dashboard

Student Report

Student Details

Sort by Date

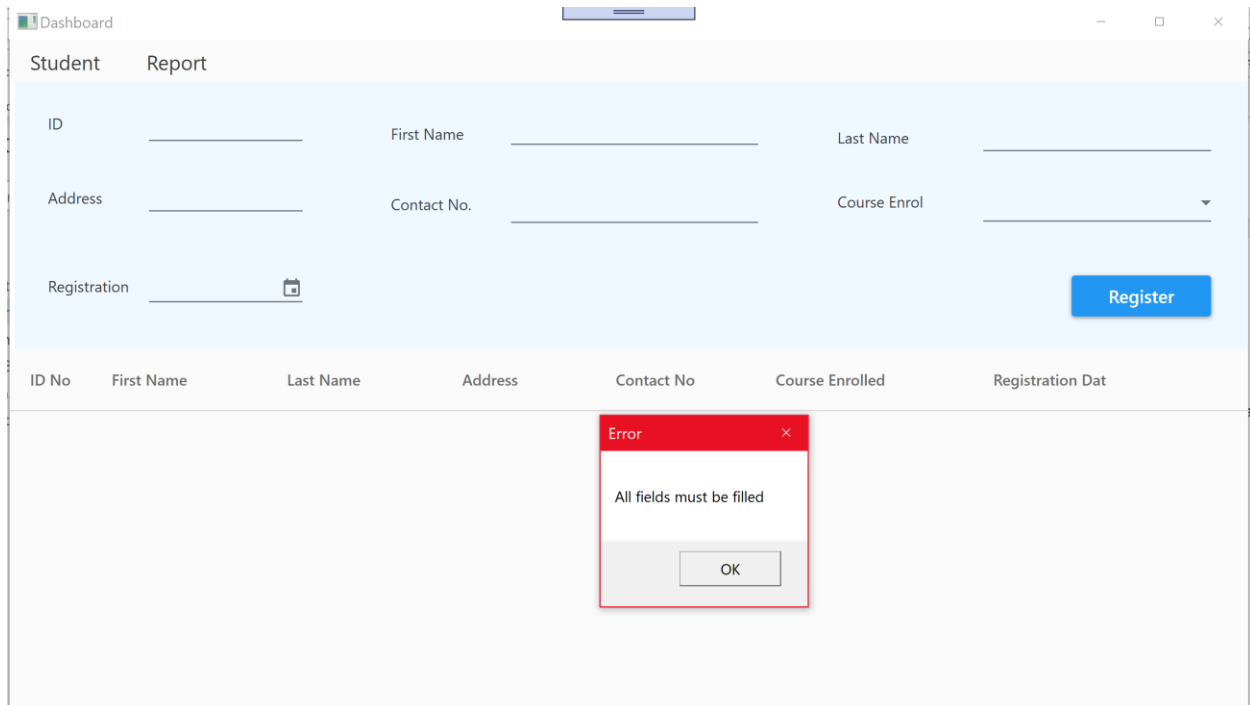
ID No	First Name	Last Name	Address	Contact No	Course Enrolled	Registration Date
4	Rajan	Gurung	Amarsignh Chov	9856023425	Application Development	1/12/2020
dfgdf	gfgfd	hgfhggdf	ghfgd	qghgfsdh	Application Development	1/13/2020
12123	Rty	zoomra	asdad	23	Advance Database	1/14/2020
123	vvvv	vcv	asdasdsad	cvasd	Advance Database	1/15/2020
dsfsdfsafd	sdfdsafs	gsdffasdf	sdfgfsadf	sfdggdfs	Artificial Intelligence	1/15/2020
1	bishal	dhital	rambazar	9860255164	Artificial Intelligence	1/15/2020
1	bishal	dhital	RAMbazar	9860255164	Artificial Intelligence	1/15/2020
asdsad	hero	zoomra	asdad	23	Artificial Intelligence	1/2/2020
2	Amit	Thapa	Birauta	9856089311	Advance Database	1/20/2020
edv	ded	edf	edf	edf	Artificial Intelligence	1/4/2020

Figure 8: Sorting Data by Date

2.7. Error Handling

Many other error handlings is taken is in place so that people can only enter valid data such as:

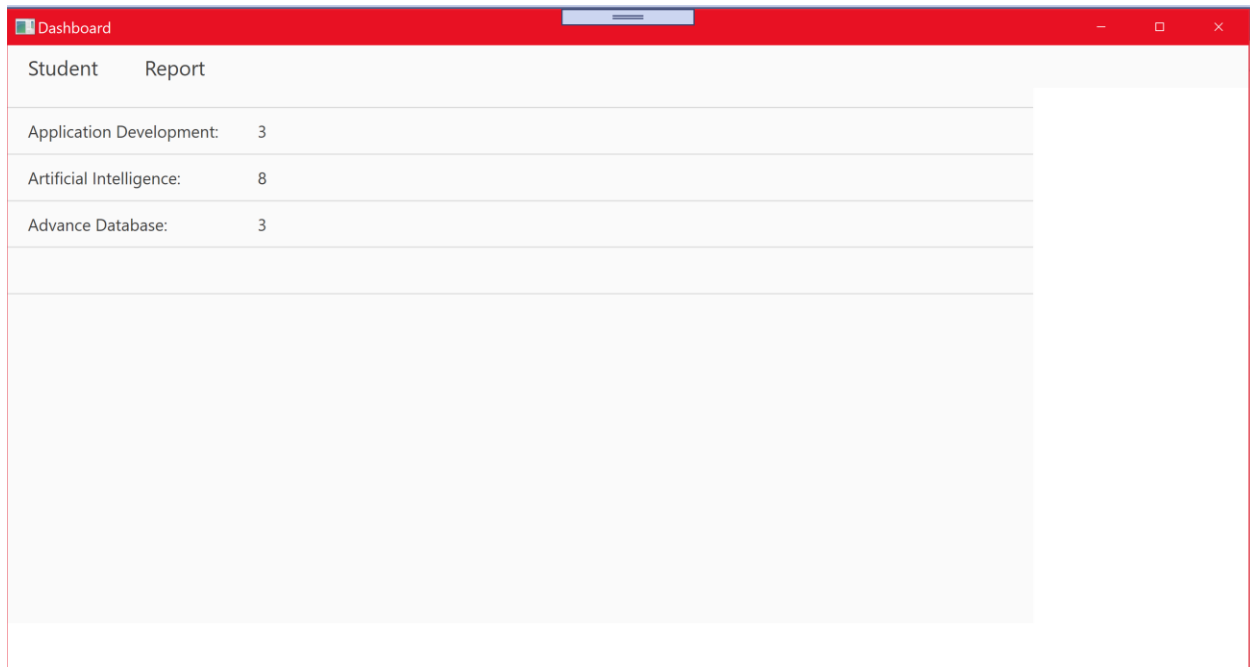
2.7.1. No textfield can be empty



The screenshot displays a web application window titled "Dashboard". Inside, there's a "Student Report" section. The form contains several input fields: "ID", "First Name", "Last Name", "Address", "Contact No.", "Course Enrol" (a dropdown menu), and "Registration" (with a calendar icon). A blue "Register" button is positioned to the right of the "Registration" field. Below the form is a table with headers: "ID No", "First Name", "Last Name", "Address", "Contact No", "Course Enrolled", and "Registration Dat". An error dialog box is overlaid on the table, with a red header "Error" and a close button. The message inside the dialog reads "All fields must be filled", and there is an "OK" button at the bottom.

Figure 9: No Textfield can be Empty

2.8. Data Grid View



Student		Report
Application Development:	3	
Artificial Intelligence:	8	
Advance Database:	3	

Figure 10:Data Grid View

There is chart table in which total enrollment of student is shown in the data grid view according to their enrollment subject name.

2.9. Chart of Daily Reports

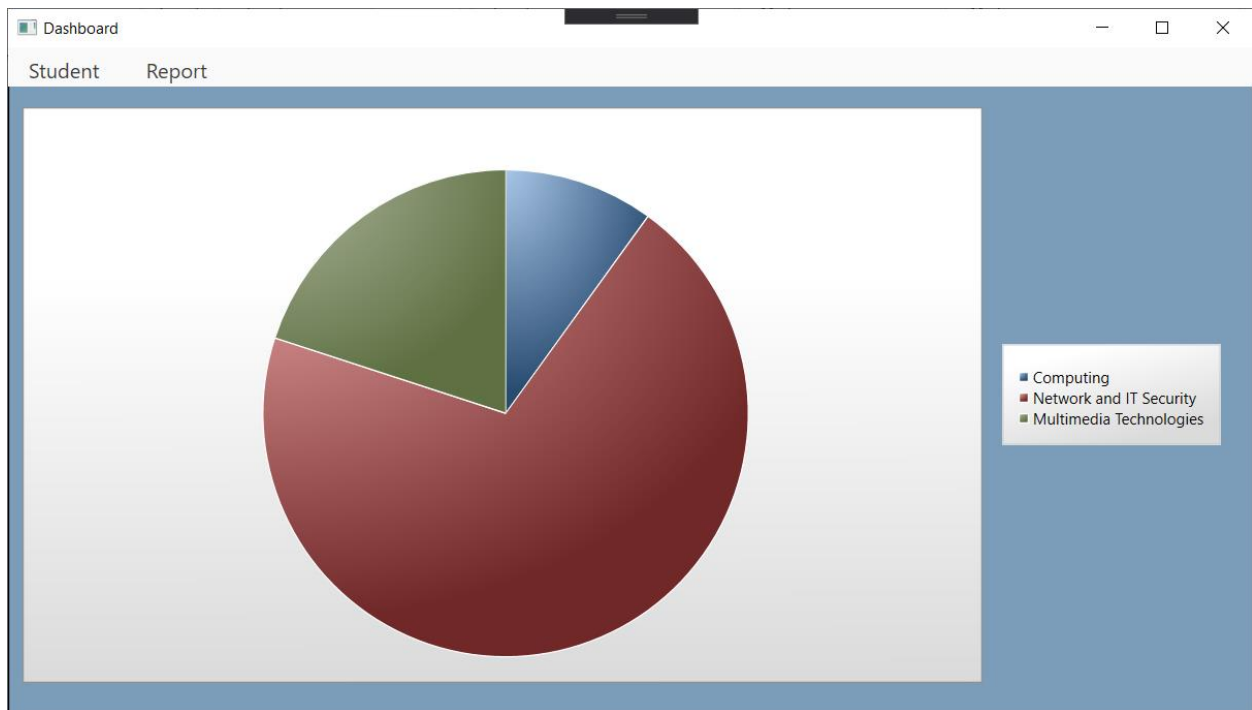


Figure 11: Daily Reports Chart

A chart is also shown that shows the number of students in each enrollment subject name.

3. Software Architecture

In simple words, software architecture is the process of converting software characteristics such as flexibility, scalability, feasibility, reusability, and security into a structured solution that meets the technical and the business expectations. This definition leads us to ask about the characteristics of a software that can affect a software architecture design. There is a long list of characteristics which mainly represent the business or the operational requirements, in addition to the technical requirements.

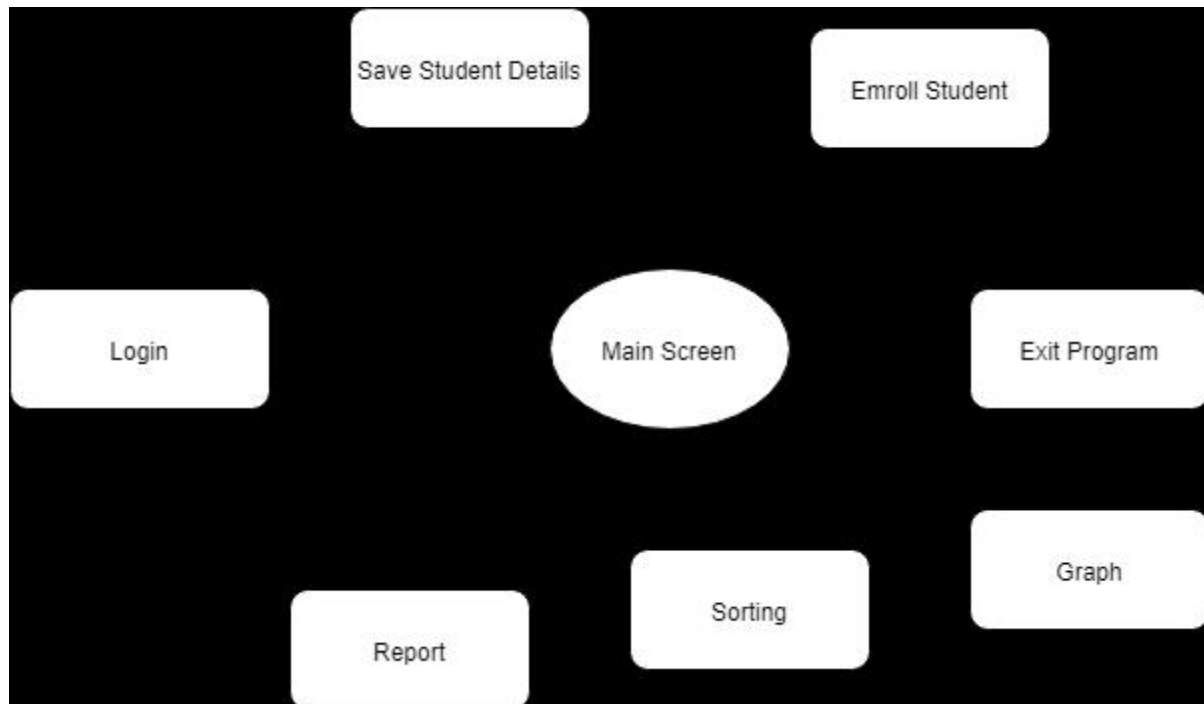


Figure 12:Software Architecture

4. Flow Chart

4.1. Daily Flow Chart

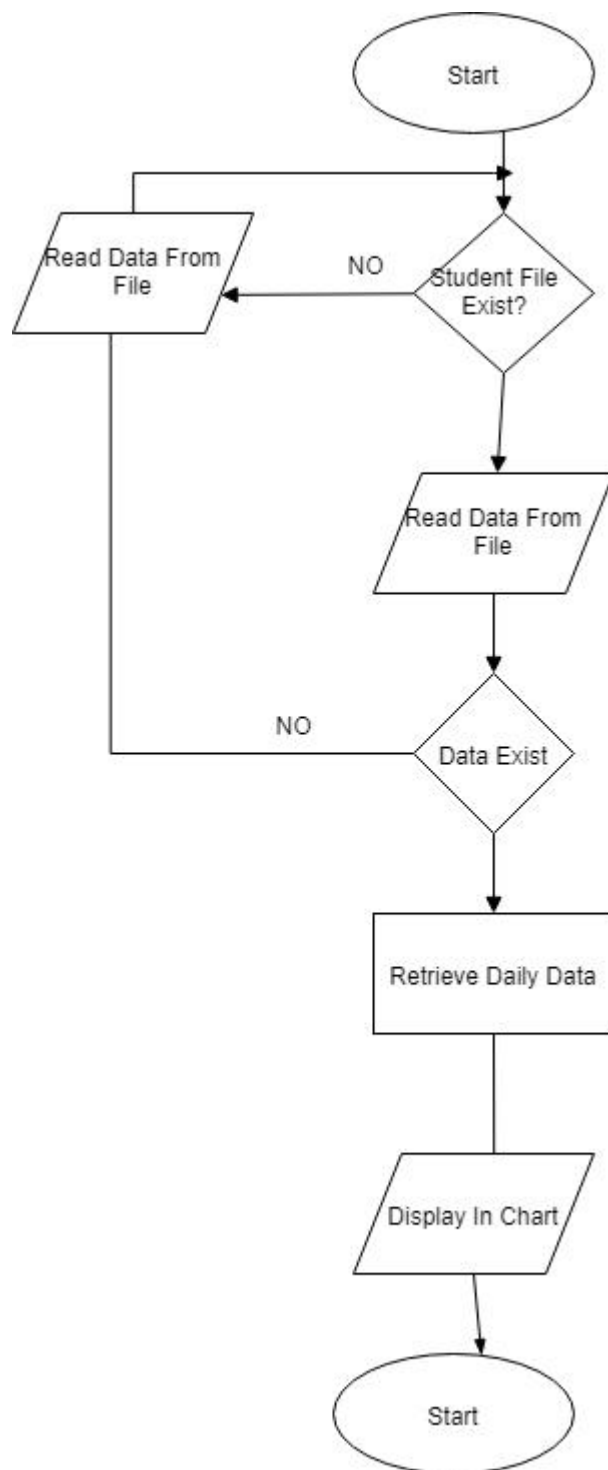


Figure 13: Daily Flow Chart

4.2. Weekly Flow Chart

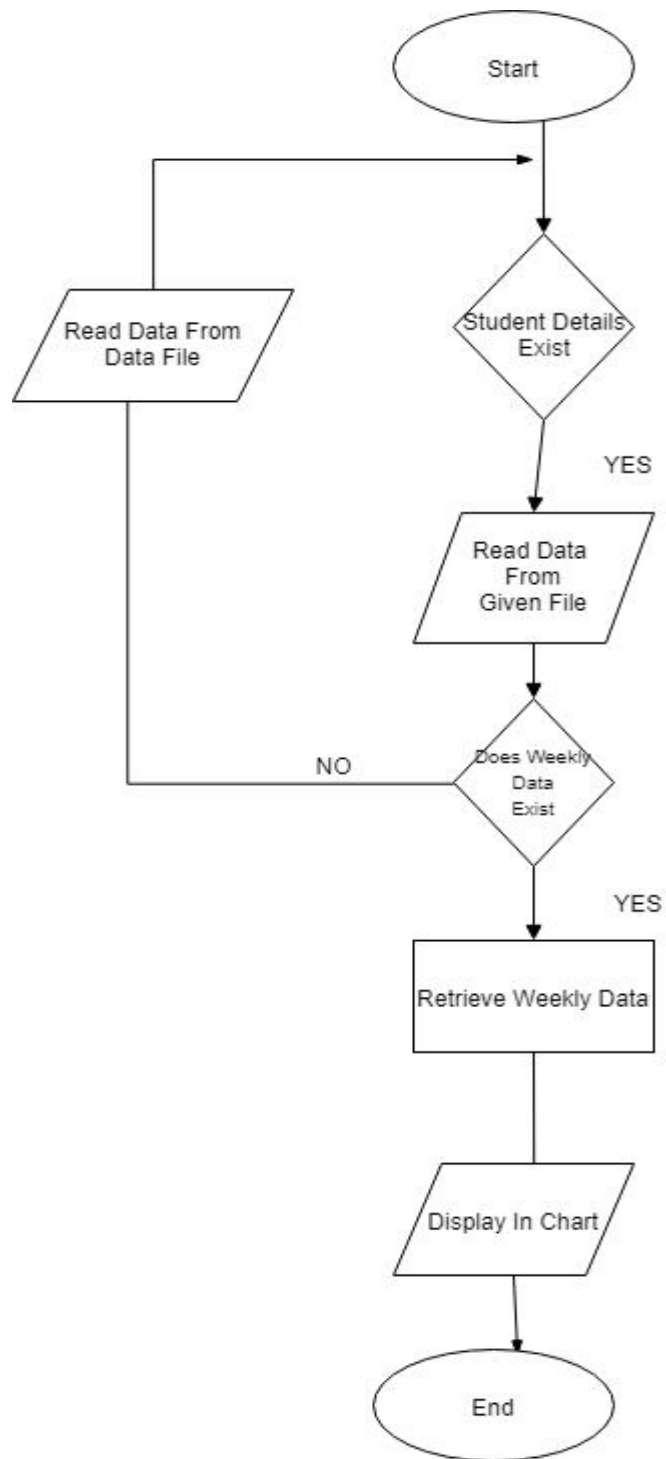


Figure 14: Weekly Flow Chart

5. Algorithm Used

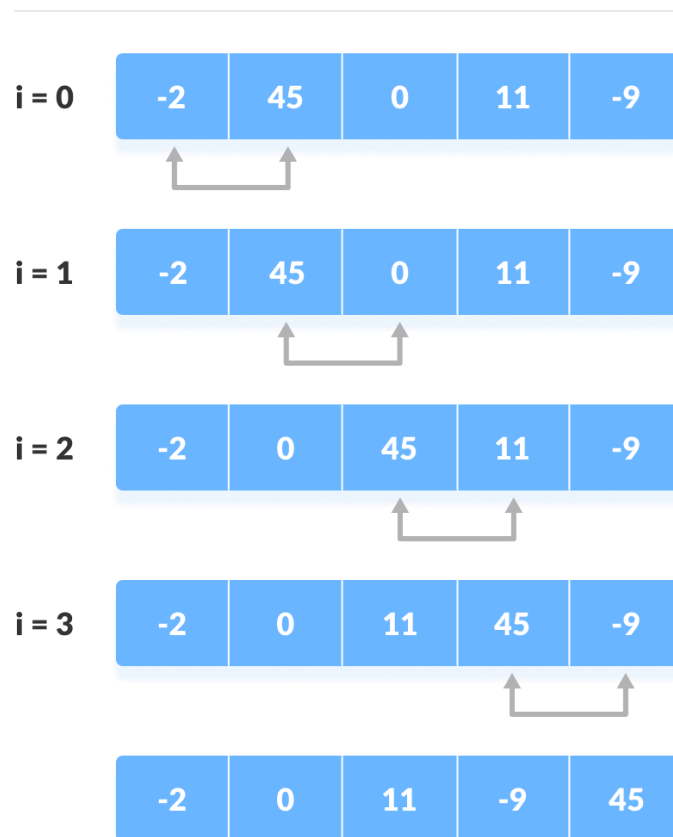
Bubble sort is an algorithm that compares the adjacent elements and swaps their positions if they are not in the intended order. The order can be ascending or descending.

How Bubble Sort Works?

Starting from the first index, compare the first and the second elements. If the first element is greater than the second element, they are swapped. Now, compare the second and the third elements. Swap them if they are not in order.

The above process goes on until the last element.

step = 0

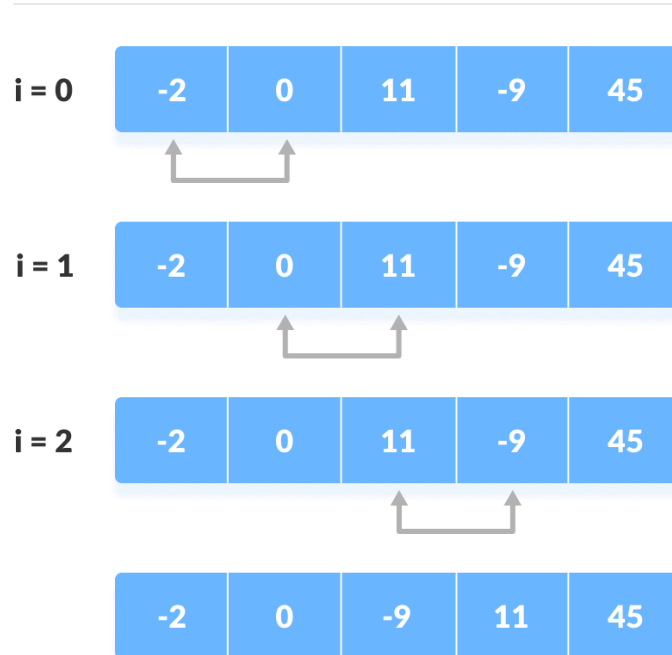


The same process goes on for the remaining iterations. After each iteration, the largest element among the unsorted elements is placed at the end.

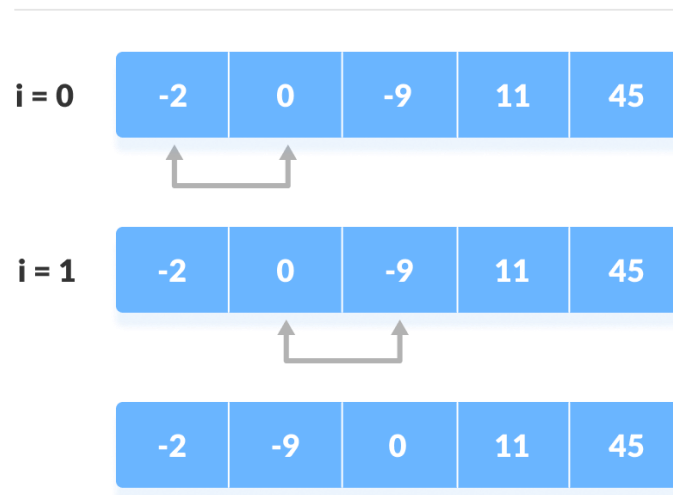
In each iteration, the comparison takes place up to the last unsorted element.

The array is sorted when all the unsorted elements are placed at their correct positions.

step = 1



step = 2



step = 3



CODE:

```
bubbleSort(array) for i <- 1 to indexOfLastUnsortedElement-1 if leftElement >  
rightElement swap leftElement and rightElement end bubbleSort
```

Reflection:

6. Reflection

For the development of whole project following tools have been used and various research were done in websites, journals, books, module, etc.

Tools Used for Development

- Visual Studio

Visual Studio is an software from where we can design code and make different software and codes. An end user can have the facilities of add the In Time and Out Time of the visitor along with their name. The total duration spend by the visitor is calculated automatically by the system.

Visual Studio 2019 is an integrated, complete solution with development tools, cloud services and extensions that enables you and your team to create great applications and games for desktops, the web, Windows Store, Android and iOS. Choose between different editions, depending on whether you work alone or in a small team (Professional edition) or in a complex project across departments and locations (Enterprise edition). Visual Studio 2019 provides everything you need to help you deliver software in less time and even better quality.

- **MS-Word** : For writing the report / documentation.
- **Draw.io**: For creating the diagram.

7. Conclusion

After Conclusion of the project I can gladly say that I was able to do better coding than before in C# with the help of the guide of the teacher and module leader. I was able to create a simple yet effective student registration system in C# with the help of WPF forms. Furthermore, I gained more knowledge in the sector of importing and exporting of the fields like csv and xml etc. and serialize and de serialize in the program. I was also able to add data in data grid and show that grid in the chart.

After the completion I am confident enough to make other similar types of project related to the programming language and have learned much more in the field.

8. References

Bubble Sort Algorithm. (n.d.). Retrieved 10, 2020, from programiz.com/dsa/bubble-sort