A project report On

Student Management System

Submitted in partial fulfillment of the requirement of

Project – II (BCA 278CO)
Of
Bachelor of Computer Application
Submitted to

Purbanchal University

Biratnagar, Nepal

Submitted By:

Bimal Shrestha

Nishan Shrestha

Rikesh Shrestha

KANTIPUR CITY COLLEGE

Putalisadak, Kathmandu

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Submitted By:

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Nishan Shrestha (325491)

Rikesh Shrestha (325496)

Project Supervisor:

Bikash Neupane

Project Coordinator

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KANTIPUR CITY COLLEGE

Putalisadak, Kathmandu

August, 2021

CERTIFICATE OF APPROVAL

The undersigned certify that they have read and recommended to the Department of Computer in Application for acceptance, a project report entitled "Student Management System "submitted by

Bimal Shrestha

Rikesh Shrestha

Nishan Shrestha

In partial fulfillment for the degree of Bachelor of Computer Application

…….

Bikash Neupane
Project Supervisor

Department of IT

…….

Saroj Pandey

Head of Department
Department of IT

ACKNOWLEDGEMENT

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The project members must express our gratitude to **Bikash Neupane** for his guidance to the project. The project members are equally grateful to the seniors for their valuable suggestions, encouragements and recommendations for developing this report.

Lastly, the project members must acknowledge 'Kantipur City College' family without whom this project wouldn't have been completed successfully. The project members are happy to thank our lab coordinator, lab-assistants for providing well equipped lab for the development of this project work. Any valuable comments and suggestions about the improvement of the project are always appreciated.

The project members extend our thanks and gratitude to our parents, friends and those who helped us directly and indirectly for the successful completion of this project work.

Abstract

Students form a main part of any institution that concerns with. But the institutions finds it difficult to keep details of so many students of the organization just in one stretch. It will involve a lot of pen paper work. Sometimes there will be some huge heap of files bundled up and kept together in some corner of the office. If you want any information regarding the particular student then it can be obtained by just entering the roll number or the name of the student to be searched. This student management system will make the work of the storing the data in an organized way.

The student management system application will help in managing the student's reports, results and exams will be easier with one such system. It will also help in saving time and effort. The user interface must be user friendly and easy to understand. The information of the particular student will be obtained in just one click.

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Chapter 1: INTRODUCTION

1.1 Introduction

Student Management System is a basic C++ program for education establishments to manage student data. Student Management Systems provide capabilities for entering student test and other assessment scores, build student schedules, and manage many other student-related data needs in a school. In this Student Management System project, user can create, display, search, modify and delete student record from a binary file.

This is a simple student file management system developed in C++. It utilizes file handling and shows effective implementation of class and object of the programming language. This project will teach you how to add, list, modify and delete records in file in C++ language. It is very simple to understand.

1.2 Problem Statement

In order to make the systematic records of the students belonging to different faculties in a digital way, we have created this console application. To record the detail information (Name, ID, Faculty, Semester, etc.) of the students, to modify and eradicate the existing records and obtaining records whenever we want, were the main core concept behind developing this application. Before this in order to record student detail we have to do everything manually so it will take more manpower as well as there were many chances of mismatching the data of the student and sometimes the details of the student might be lost! So overcoming all this problems this console based application was made. With the help of this application the data of the student will never lost until and unless it is no longer needed and deleted. We can keep records for long time being. And further, we have added the marks keeping feature in this application where we can insert student's terminal exam marks and after calculating the marks it gives the grade.

1.3 Objectives

The major objectives of this project are mentioned below:

- To maintain and manage student's records.
- To create, modify and delete the student's records in file.

1.4 Significance

This Student Management System was developed to maintain and manage the student's details. It not only stores and display the student's information, it also helps in searching, modifying and deleting the information from the file. In today's world, everyone wants to do the works in simple and efficient manner so instead of doing the pen paper works in the bundle of files it is easy to do in this console application.

Some of the main significances of this console application are listed below:

- Create new student's records.
- Display student's records.
- Search student's records.
- Modify student's records.
- Delete student's records.

1.5 Feature

Some of the features that it includes are as follows:

- **Student file management**: The detail of the students of the organization can be managed in the file with the use of this application.
- **Results**: The results of the students can also be accessed and store through this application.
- **Security**: The data will be disclosed that makes the data more secured as there will be no access to the unknown users.
- **Personal Details**: All the personal details of the student can be accessed with just one click.

1.6 Limitations

The drawbacks in Student Management System software can be counted on fingers; with mostly only benefits.

- It could all be lost if someone accidently deleted it.
- Deleted records can't be restored again.

1.7 Assignment of roles and responsibilities

Symbol No.	**Members Name**	**Roles**
325482	Bimal Shrestha	Coding, Documentation, Analysis, Testing
325491	Rikesh Shrestha	Coding, Documentation, Analysis, Testing
325496	Nishan Shrestha	Coding, Documentation, Analysis, Testing

Table no: 1.7

1.8 Organization of document

The documentation of this project is classified into following 5 chapters.

Chapter 1: Introduction

In this section, the project members have briefly defined typing tutor along with problem statement, objectives, significance, and features.

Chapter 2: System Analysis

In this section, the project members have discussed on how we gathered necessary requirements and how the project members did a feasibility study on those requirements.

Chapter 3: System Design

It includes functional requirements, algorithms and flowcharts which are used in this console application with brief description of each.

Functional Requirements: Functional requirements refer to a function of a system or its components, where a function is described as specification of behavior between inputs and outputs. Algorithm: Algorithm is a step-by-step procedure for solving a problem. Flowchart: Flowchart refers to a graphical representation of a computer program.

Algorithm: Algorithm is a step-by-step procedure for solving a problem.

Flowchart: Flowchart refers to a graphical representation of a computer program.

Chapter 4: System Development and Implementation

It includes programming platform, test plan and implementation and result analysis.

Programming Platform: Programming platform refers to a computer program that the project members use to write a program and compile it.

Test Plan: Test plan refers to how we test our programs.

Implementation and Result analysis: This section mentions the problems we faced while implementing or after implementing the program and how the project members overcome those problem's and finally acquired the result we wanted.

Chapter 5: Conclusion

In conclusion the project members have discussed about the experience gained during this project and the objectives that the project members achieved.

Chapter 2: SYSTEM ANALYSIS

2.1 Feasibility study

2.1.1 Project description

- This application is password protected, upon insertion of the password protection only one person can operate the application.
- We can easily insert the record of the student after authorization.
- We can easily eradicate the record.
- Adding new record easy.
- Data security.
- Ease to use.
- We can easily get the desired record using right command.

2.1.2 Find Solution

This console application was made to view and record the student's details easily and retrieve the information easily as we desire.

2.1.3 Research

It was quite a long process, first we designed the interface of our project! Then we divided our work in different parts to all the three members equally. In the presence of all the three members we added the features we required in the project. Thus, this application is built only to view and record the student's information which is completed with the equal efforts of our crew.

2.2 Schedule

Task	Starting date	Ending date
Planning	20/02/2021	05/03/2021
Design	06/03/2021	25/04/2021
Development	12/03/2021	20/07/2021
Testing	26/04/2021	30/06/2021
Implementation	15/06/2021	30/07/2021

Table no 2.2

2.3 Gantt chart

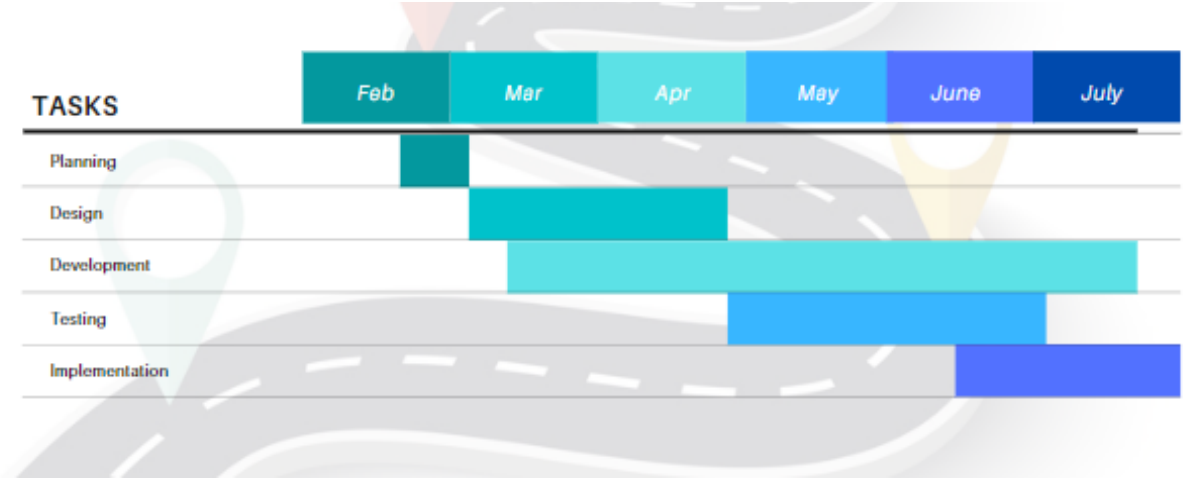


Fig. No. 2.3

Chapter 3: SYSTEM DESIGN

Systems design is the process of defining elements of a system like modules, architecture, components and their interfaces and data for a system based on the specified requirements. It is the process of defining, developing and designing systems which satisfies the specific needs and requirements of a business or organization.

3.1 Functional Requirement

Function no	Function Name	Class	Function Description	Requirements Covered
1	gotoxy	-	Cursor at desire location	
2	time	-	To show time and date	
3	loading	-	To display loading sign	
4	mainEntrance	-	To display Welcome screen	
5	login	-	To grant access with username and passwords	
6	getStudentData	student	To get data of students	
7	displayData	student	To display the records of students	
8	addRecord	student	To insert the new records of students in file (file)	
9	delRecord	student	To delete the records of students from file (file)	
10	modifyRecord	student	To modify the existing records in file (file)	
11	searchRecord	student	To search the record of students	
12	nameSearch	student	To search the student's records with name	

13	idSearch	student	To search the student's records with ID	
14	recordMenu	student	To display records of different Programs and Semester	
15	mainmenu	student	To display the Admin Portal	
16	marksMenu	student	To display marks menu	
17	insertMarksMenu	student	rt the marks of	
18	putMarks	student	To input marks of terminal exams	
19	add1stMarks	student	To add 1st Term marks of subjects	
20	add2ndMarks	student	To add 2nd Term marks of subjects	
21	add3rdMarks	student	To add Main Term marks of subjects	
22	marksCalculate	student	To calculate the grade according to marks scored	
23	getStudent1stMarks	student	To input marks of 5 subjects of 1st Term	
24	getStudent2ndMarks	student	To input marks of 5 subjects of 2nd Term	
25	getStudent3rdMarks	student	To input marks of 5 subjects of Main Term	
26	view1Result	student	To display the report card of 1st Term	
27	view2Result	student	To display the report card of 2nd Term	
28	view3Result	student	To display the report card of Main Term	
29	display1Result	student	To display the report card of 1st term of desired student	

30	display2Result	student	To display the report card of 2nd term of desired student	
31	display3Result	student	To display the report card of main term of desired student	

Table No: 3.1

3.2 Algorithm

Step 1: Start

Step 2: Welcome screen

Step 3: Enter your new password

Step 4: Enter your new password for confirmation

If newPassword and confirmationPassword matched

Create the line with new password in file.

Goto step 5

Else

Display Confirmation Password didn't matched

Step 5: Login phase

If username and password matched

Goto step 6;

Else

Goto Step 5;

Step 6: Display Admin portal.

If choice is 1

Goto step 7

If choice is 2

//view records

Goto step 9

If choice is 3

//Modify record

Goto Step 14

If choice is 4

//Search record

Goto Step 17

If choice is 5

//Delete records

Goto Step 25

If choice is 6

//students marks

Goto step 29

If choice is 7

//Change Admin Password

Goto step 63

Step 7: Get Student data from Admin

Step 8: Get Student data from File “Student”.

Step 9:

If idfromuser matches idfromFile

Display Student ID already exists.

Goto Step 6

Else

Store the Data in File (file) ‘Student’.

Display Student record has been added to the FILE.

Goto step 6.

Step 10: View Records

Step 11: Display enter program and semester.

Step 12: get program and semester from User.

Step 13:

If userEnteredProgram matches FileProgram and userEnteredSem matches FileSem

Display Students

Records Goto step 6

Else

Display No such program and semester found in file.

Goto step 6

Step 14: Modify records

Display Enter the id of the student you want to modify!

Step 15: get Data from File

Step 16:

If idfromuser matches idfromFile

Delete previous data in file.

Replace the data with new data.

Display The Student data has been modified.

Goto step 6

Else

Display no such Student ID found in File.

Goto step 6

Step 17: Search record

Step 18: Display search Menu.

If choice is 1

Goto 19

If choice is 2

Goto 23

If choice is 3

Goto step 6

If choice is 4

exit

Step 19: ID Search

Step 20: Display enter ID to search a student

Step 21 : Get data from file(file) ‘Student’.

Step 22:

If idfromuser matches idfromFile

display student record

goto step 17

else

display no such id found in FILE

goto step 17

Step 23: Name Search

Step 24: Display enter Student name:

If namefromuser match namefromFile

display student record

goto step 17

else

Display no such name found in file

Goto 17

Step 25: delete record

Step 26: Display enter ID to Delete a student record

Step 27: Get data from file(file) ‘Student’.

Step 28: if idfromuser matches idfromFile

Display student record then, Delete the record

Else

No such id found in file.

goto step 6

Step 29: Students mark’s Port!

Step 30: Enter your choice!

Step 31: if choice is 1

Go to step 32;

Else if choice is 2

Go to step 51;

Else if choice is 3

Return to admin port;

Else if choice is 4

Exit();

Step 32: Terminal Exam!

Step 33: Enter your choice!

Step 34: If choice is 1

Go to step 35;

Else if choice is 2

Go to step 40;

Else if choice is 3

Go to step 45;

Else if choice is 4

Go to step 29;

Else if choice is 5

Exit();

Step 35: FIRST TERMINAL!

Step 36: Enter student id to enter marks

Step 37: if id matches recordedid

Go to step 38;

Else

Id doesn’ t exist. Try again!

Step 38: Enter the subject marks!

Step 39: Record successful enter any key to return to marks Terminal port!

Step 40: SECOND TERMINAL

Step 41: Enter student id to enter marks

Step 42: if id matches recordedid

Go to step 43;

Else

Id doesn’t exist! Try again;

Step 43: Enter the marks.

Step 44: Record successful enter any key to return to marks terminal port!

Step 45: SEMESTER MAIN

Step 46: Enter semester!

Step 47: if enteredSem matches existingSem

Go to step 48;

Else

Id doesn’t exists. Try again!

Step 48: Enter the marks.

Step 49: Record successfully enter any key to return main menu.

Step 50: Return to terminal port.

Step 51: Report port!

Step 52: Enter your choice!

Step 53: if choice is 1

Go to step 54;

Else if choice is 2

Go to step 57;

Else if choice is 3

Go to step 60;

Else if choice is 4

Return to Student report port;

Else if choice is 5

Exit();

Step 54: Enter student id!

Step 55: if id matches existingid

Go to step 56;

Else

Try again;

Step 56: Display's the student first terminal marks according to the id.

Step 57: Enter student id!

Step 58: if id matches existingid

Go to step 59;

Else

Try again;

Step 59: Display's the student second terminal marks according to the id.

Step 60: Enter the semester!

Step 61: if semester matches existingsemester

Go to step 62;

Else

Try again;

Step 62: Displays the result of student according to the input.

Step 63: Get old Password from user.

Step 64:

If oldPassword matches passwordfromfile

Continue:

Else

Display password didn’t matched.

Step 65: Get new Password.

Step 66: Get confirmation password.

Step 67:

If password matches confirmationPassword

Replace the line with new password in file.

Else

Display Confirmation Password didn’t matched.

Step 68: Return to Main Menu

Step 69: END

3.3Flow Chart

i) Main

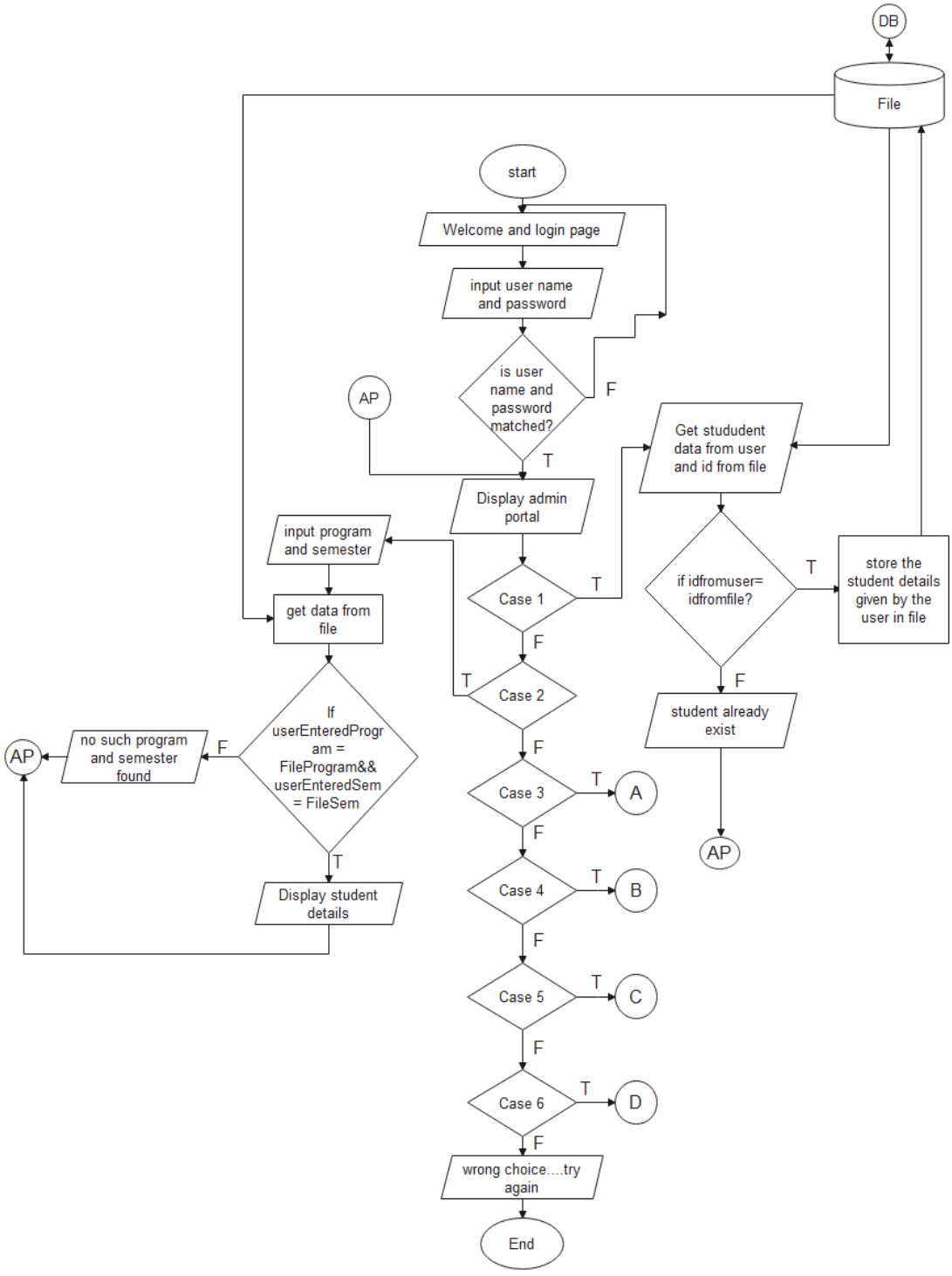
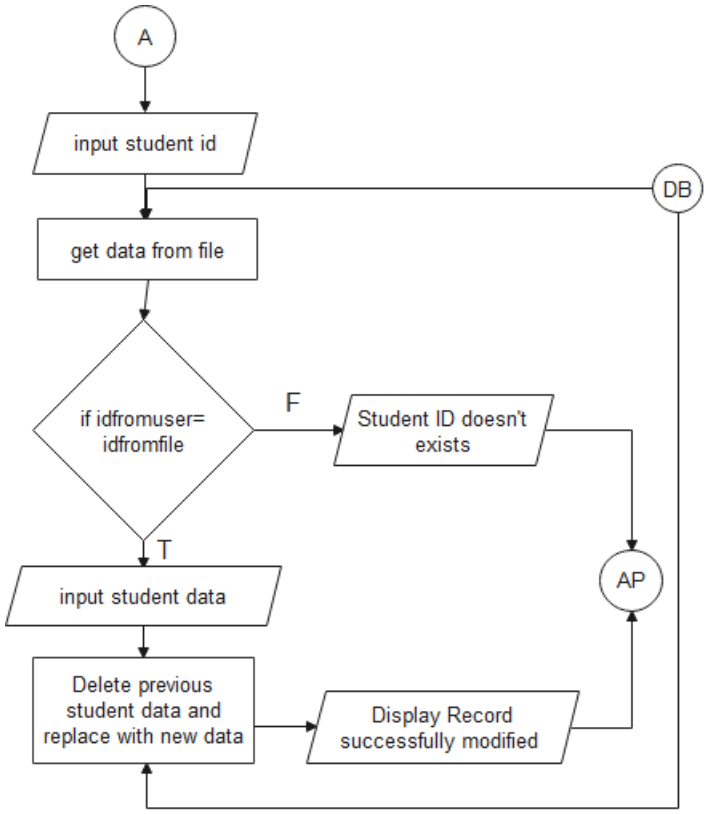


Figure:3.3.1

ii) Modify record



Add your text here

Figure:3.3.2

iii) Search Menu

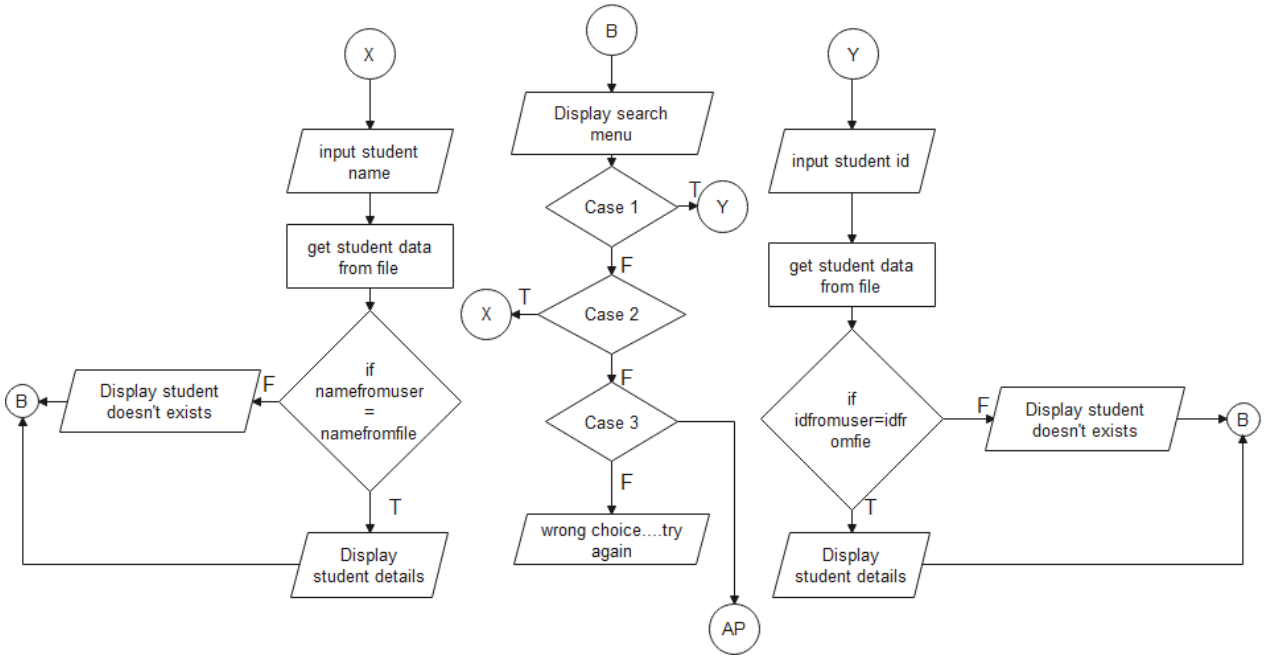


Figure:3.3.3

iv) Marks Menu

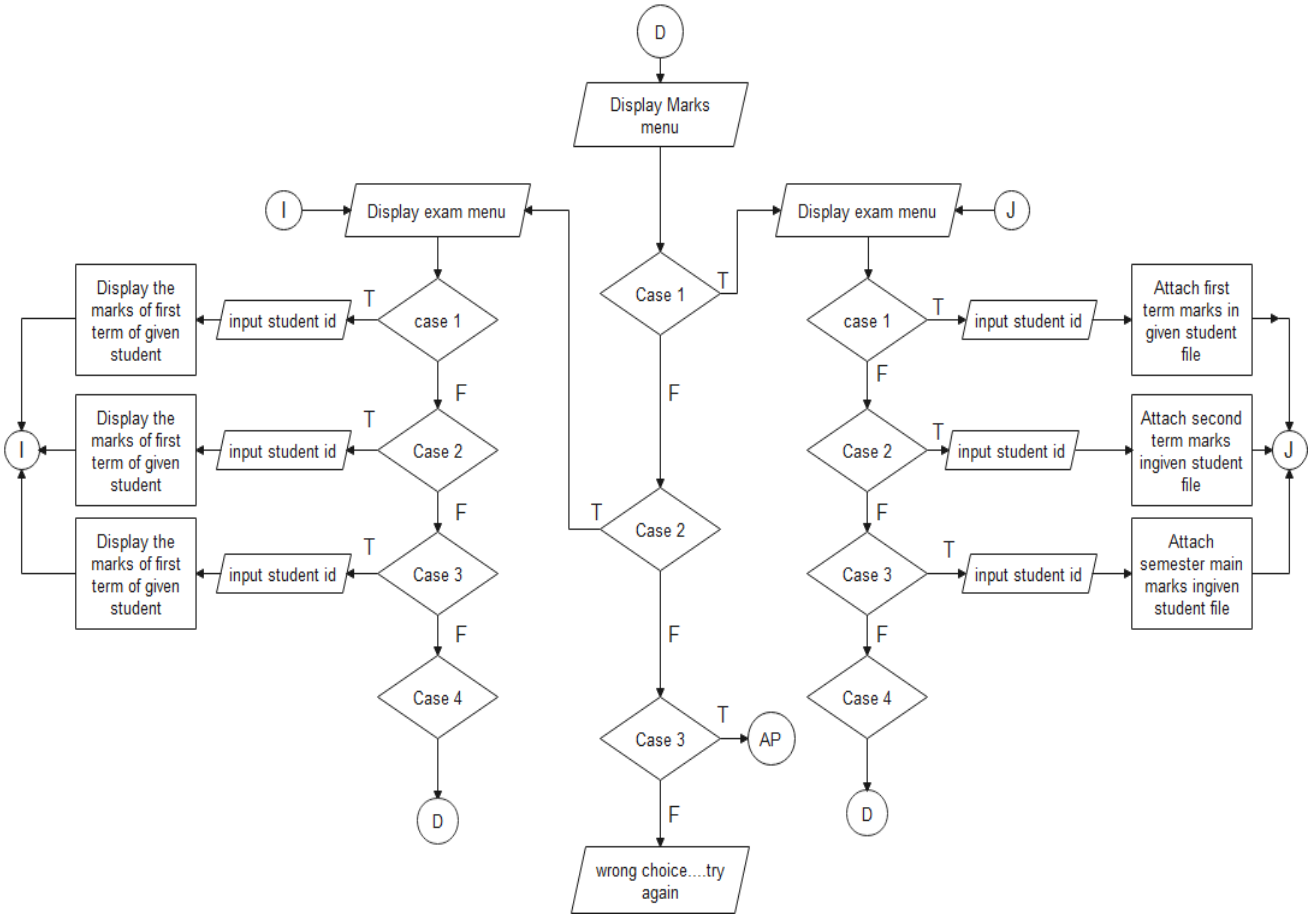


Figure: 3.3.4

v) Delete Record

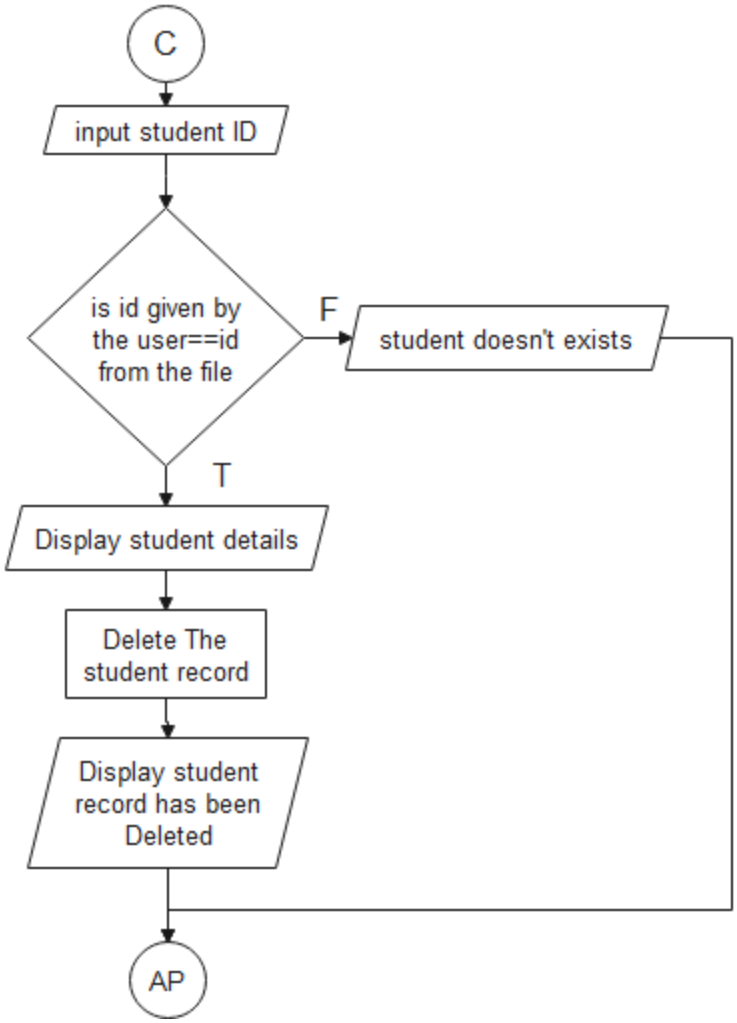


Figure: 3.3.5

vi) Change Admin Password

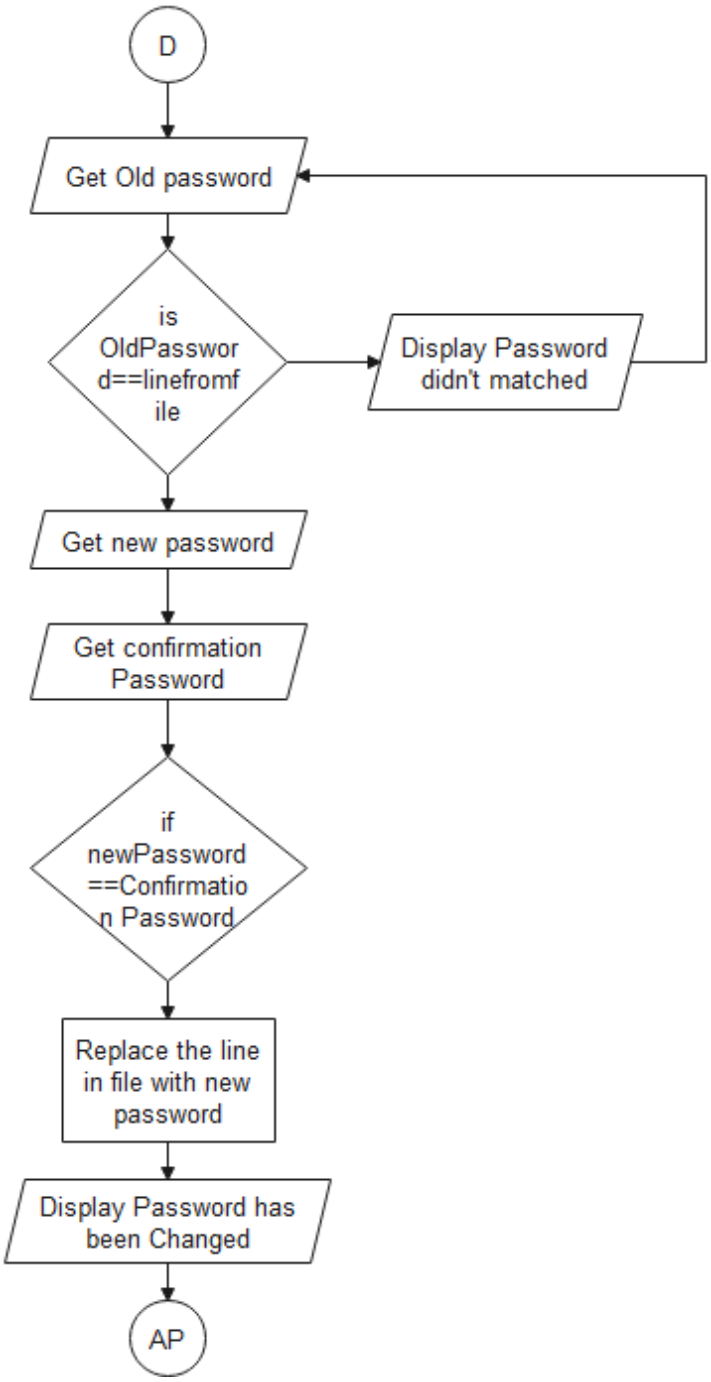


Figure 3.3.6

Chapter 4: SYSTEM DEVELOPMENT AND IMPLEMENTATION

4.1 Programming Platform

We developed this console application using DEV C ++ and visual studio code with the help of our text books and Google as well as YouTube. First the user interface design was done by using MS word where we all discussed about the map of this application either by drawing or with the help of words then the coding process was done as explained on the first line of this paragraph.

4.2 Test Plan

Testing is the practice of making judgments regarding the extent to which the system meets, exceeds, or fails to meet stated objectives. Testing is about verifying that what was specified is what was delivered. It verifies that the system meets the functional performance, design and implementation requirement as per stated at the initial stage of the system. Testing (System Testing) involves testing the system to validate that it meets user specifications and objectives.

The module is tested and the expected results are shown below:

Case	Area	Expected result
1	Insert record	The system shouldn't record existing student's details.
2	View record	System should display the record of user desire program.
3	Search record	Search method should be different like name search and id search
4	Student marks	Student marks should be attached to a existing student file
5	Login phase	Password should be hidden.

Table no 4.2

4.3 Implementation

The project members have developed this console application with the help of following devices and software.

System developed at:

Hardware used:

For the program to be run the set of the following hardware must be prepared with the following specification:

- MSI B450 Motherboard
- 8 GB RAM
- 256 GB SSD
- 1 TB HDD
- RYZEN 3 3200

Software used:

For the program to be run the set of the following software must be prepared with the following specification:

- Windows 10 (Operating System)
- Visual Studio
- Dev C ++

Conclusion

In last, from the start to end process of developing this console application our main goals were to make this application capable of recording the details of students by an authorized person and retrieving the detail whenever we want. We have added login box through which only authorized one can have the access.

The project has matched the objectives set at the time of project & concept Submission.

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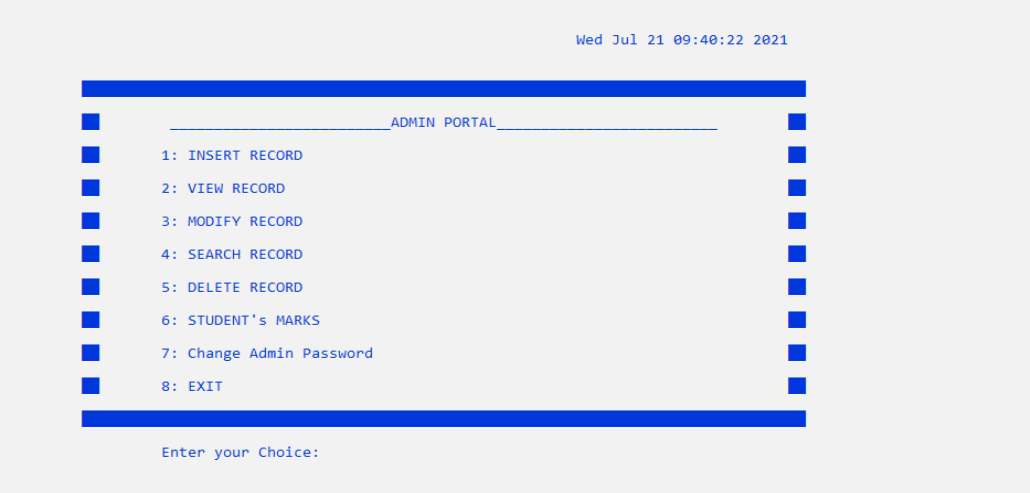
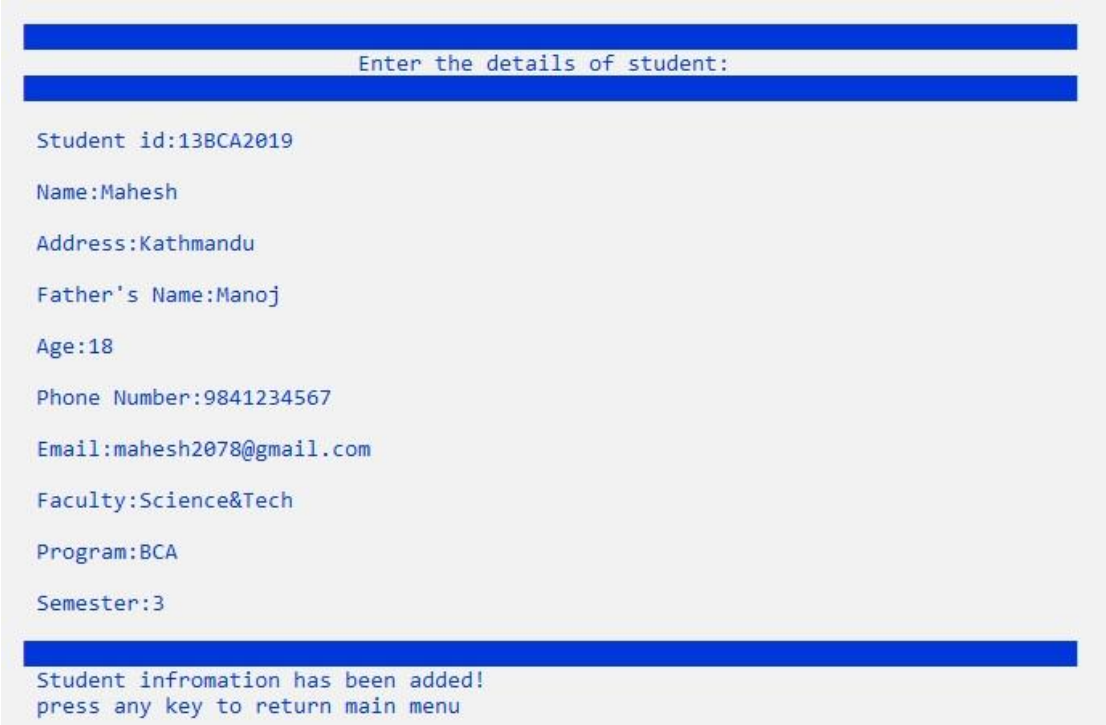
Appendices

Welcome Screen

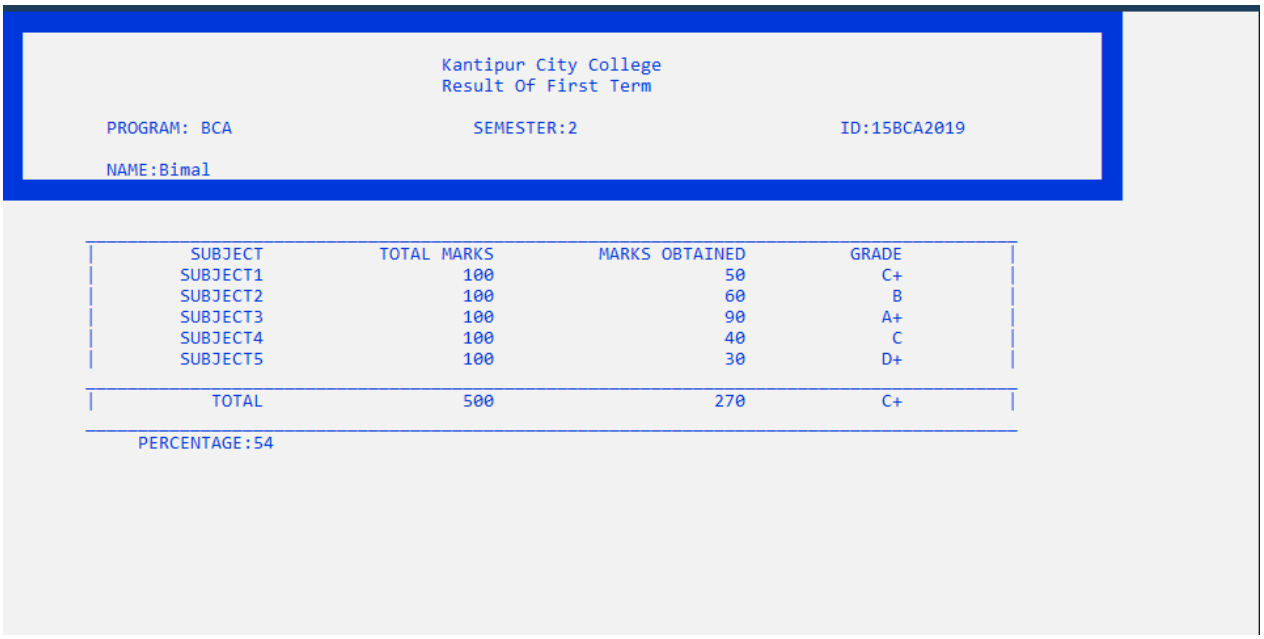


Admin Portal



New Records Entry

Search menu



```
                                Kantipur City College
                                Result Of First Term

PROGRAM: BCA                       SEMESTER:2                        ID:15BCA2019

NAME:Bimal

_____________________________________________________________________________
|         SUBJECT          TOTAL MARKS          MARKS OBTAINED          GRADE |
|        SUBJECT1                  100                      50             C+ |
|        SUBJECT2                  100                      60              B |
|        SUBJECT3                  100                      90             A+ |
|        SUBJECT4                  100                      40              C |
|        SUBJECT5                  100                      30             D+ |
_____________________________________________________________________________
|           TOTAL                  500                     270             C+ |
_____________________________________________________________________________
     PERCENTAGE:54
```

Student report card

```
Enter the old password :-1234

enter your new password :-@1b2c3

enter Confirmation password :-@1b2c3

password changed succesfully


Press Enter to continue.....
```

Change Password