Object-Oriented Methodology in C++ Project

STUDENT REPORT CARD SYSTEM

GROUP MEMBERS:

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<u>Declaration</u>

I do hereby declare that this project work has been originally carried under the guidance and supervision of Mr. SAURABH SRIVASTAVA of Computer Science Department, Indian Institute of Information Technology, Lucknow.

Our Team

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<u>ACKNOWLEDGEMENT</u>

I am grateful to God for giving us the strength to successfully complete our teamwork and for sustaining our efforts which many a times did oscillate.

I would like to express my special gratitude to my teacher Mr. SAURABH SRIVASTAVA who gave me the golden opportunity to do this wonderful project on the topic STUDENT REPORT CARD SYSTEM which also helped me in doing a lot of Research and I came to know about so many new things. I am really thankful to them.

Any attempt at any level can't be satisfactorily completed without the support and guidance of our parents and friends.

So, I would also like to thank my parents and friends who helped me a lot in gathering different information, collecting data and guiding me from time to time in making this project, despite of their busy schedules ,they gave us different ideas in making this project unique.

Thanking you

DATE: 11 July 2021

STUDENT REPORT CARD SYSTEM

OVERVIEW:

This project student report card system includes facilities of registration, search, display, modification, deletion of student information about the marks and their name and rolls number. This software searches the student information on the basis of roll number which is store in the record.

The software can be used for small schools for maintaining their records related to report card and marks of student and cost savings.

ASSUMPTIONS:

This application is used to convert the manual application to the online communication.

Customized data will be used in the application. User (here teacher) has right to enter information for storing the particular details of the students with his marks .

INTRODUCTION

The project Student Report Card Management is aimed to efficiently store and retrieve student examination reports.   This project in C++ is a simple console application built without any graphical Interface. In this project, users can perform typical report card related functions like adding a new student record and displaying, modifying, editing and deleting it. File handling has been effectively used to perform all the functions. This project mainly focus on the use of file handling in C++, add, read, display, search, modify and delete record from file.

Requirement and Who can use this Project ?

We all can understand how difficult it is to keep all the records of the students for a teacher. It is kind of annoying to use pen and fill those boxes of marks correctly of every student. So, here we came up with an idea which can definitely reduce the work of a teacher. Student Report Card system project we have specially designed for a teacher to track the record of the students with some clicks and types. Although we have not made any graphics and User Interface, it is a simple console program. In future we can assure you that we will take this project to some advance level so that a teacher can keep the records of his students in a well-ordered manner.

<mark>Why should we prefer this Project over a Pen Copy Method ?</mark>

Handling a file is quite difficult since you have to fill the small boxes and column in paper which takes a lot of concentration and on the other hand typing the marks is always has an edge over filling those small boxes with 100% accuracy .Since, we all are human and making mistakes are normal. And it is quite difficult to correct your mistake in paper sheet. And in our project we designed in such a way that we can modify student's record very easily. Also one more advantage of this project is we can search any students by just typing few number and in a very few second you can see all the details of the students, all of his/her marks and on the other hand we all know how difficult it is to search a student in those old registers book. These are the few advantages of our project over the traditional Pen Copy Method

I was mentioning those small boxes that are in the picture.

FUNCTIONALITIES

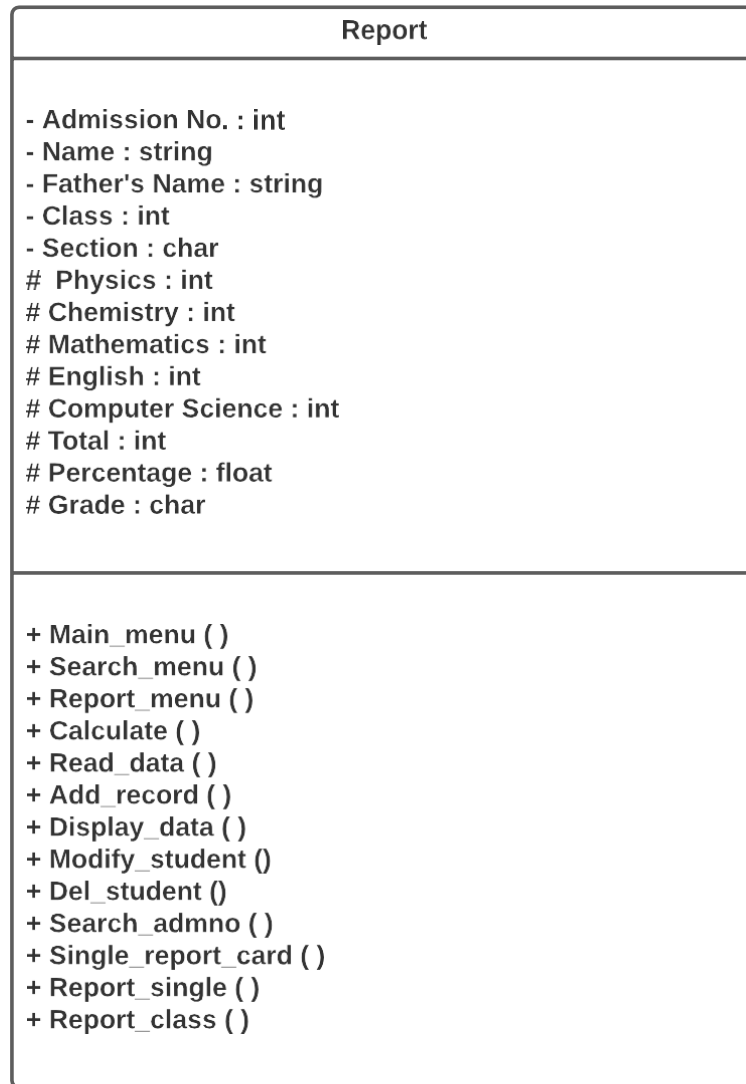**1. Add Student Record:** This feature generates a new student record containing his marks. For this the information to be provided are the Name and Roll no. of the student, and the Marks attained by him/her in 5 subjects – Physics, Chemistry, Maths, English and Computer Science.

2. Display Student Record: The void disp_data() function in this student report card system project in C++ has been used for this feature. It basically shows the progress report of all the students added in file. This feature displays the roll no. and name of all the students, the marks obtained by them in 5 subjects – Physics, Chemistry, Maths, English and Computer Science, along with the percentage and grade of each student.

3. Read Specific Student's Report Card Record: This feature is same as the one explained above, except it generates the progress report and relevant data related to a particular student. The function report_single() is used for this purpose.

4.Read Specific Class's Report Card Record– This features generates the class report of a single class.

5.Calculate Student Marks -This feature allows user to calculate total marks, percentage and grade. Calculate() function is used for this purpose.

6. Display Students' Grade Report: This feature enlists the students' record saved in file. The grade report is displayed in a tabular form with roll no. and name of the students, marks achieved in the five subjects, and the grade and percentage obtained by the student.

7. Modify Student's Report Card Record: In student report card system project in C++, this feature is used to edit the report card record of a particular student. For this, admission no. of the student is sought. Upon successful modification, the program displays the message "Record Updated". If no record of student is found in file, it displays the message "User does not exist".

8. Delete Student Record: This feature deletes the Report card record of a particular student; it first of all asks for the admission no. of the student whose record is to be deleted.

More Features of the Project :- Some of the remaining functions that enhances the project readability and maintenance. All these functions returns data in void.

- search_admno( )- This function is used to read and search the

    student admission no.

  main_menu() -   This function is used to to display main menu
- search_menu()- This function is used to display search menu
- report_menu( ) -   This function is used to display report menu

Class Diagram of Student Report Card System

Report
- Admission No. : int - Name : string - Father's Name : string - Class : int - Section : char # Physics : int # Chemistry : int # Mathematics : int # English : int # Computer Science : int # Total : int # Percentage : float # Grade : char
+ Main_menu ( ) + Search_menu ( ) + Report_menu ( ) + Calculate ( ) + Read_data ( ) + Add_record ( ) + Display_data ( ) + Modify_student () + Del_student () + Search_admno ( ) + Single_report_card ( ) + Report_single ( ) + Report_class ( )

ACTIVITY DIAGRAM OF STUDENT REPORT CARD
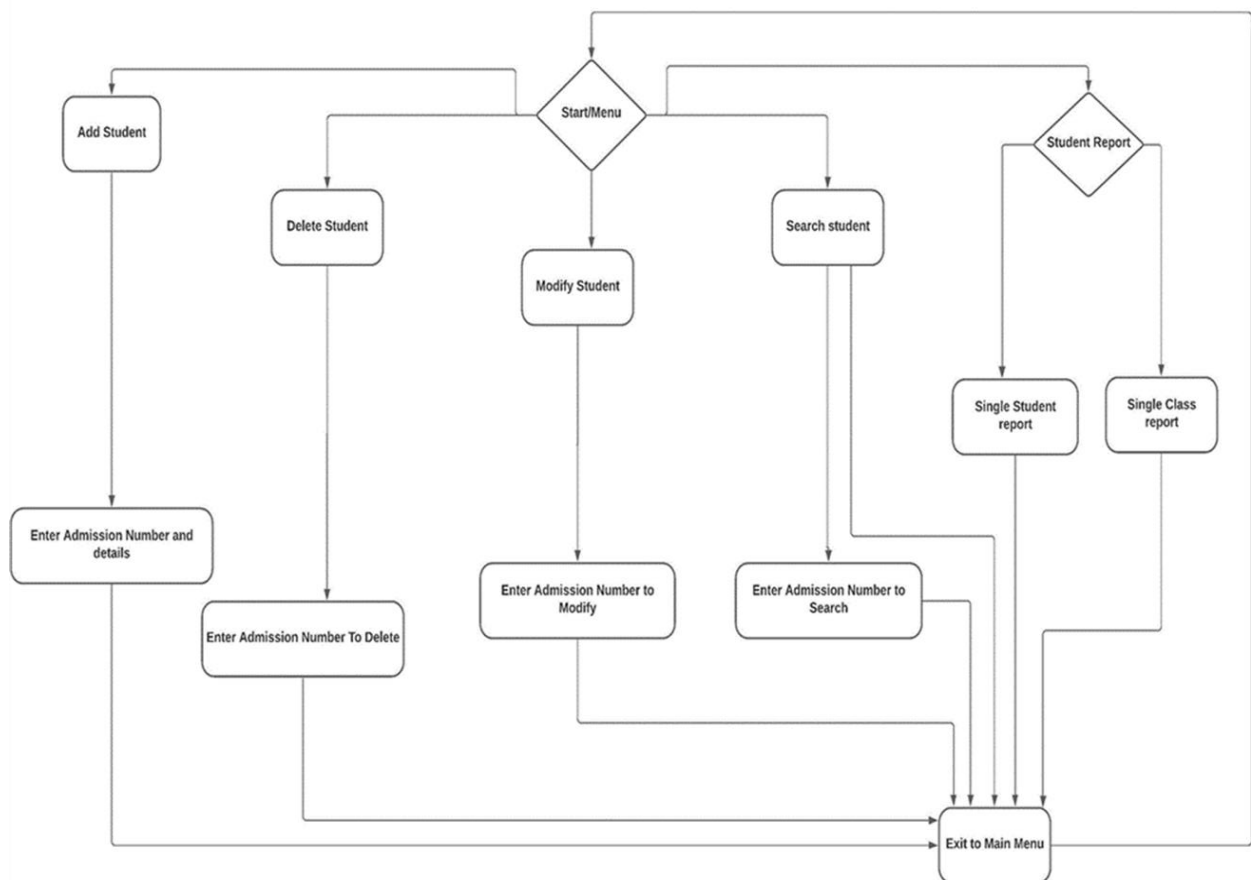
HEADER FILES USED

Student report card system is a very simple project containing five header files. Here, are the header files required for this project:

#include<iostream> - iostream stands for standard input-output stream. This header file contains definitions to objects like cin, cout, cerr etc. ... This header file is used to handle the data being read from a file as input or data being written into the file as output

#include<fstream> - fstream represents the file stream generally, and has the capabilities of both ofstream and ifstream which means it can create files, write information to files, and read information from files. To perform file processing in C++, header files <iostream> and <fstream> must be included in your C++ source file.

#include<conio.h> - Conio. h is a header file used to include some functions like clrscr(), getch() etc. You can include these function by simply #include<conio. h> where Conio stands for Console Input output. Modern IDE like Code Blocks and VS Code doesn't required to include these header files for program execution.

#include<stdlib.h> - The name "stdlib" stands for "standard library". stdlib.h is the header of the general purpose standard library of C programming language which includes functions involving memory allocation, process control, conversions and others. It is compatible with C++ and is known as `cstdlib` in C++. Modern IDE like Code Blocks and VS Code doesn't required to include these header files for program execution.

#include<string.h> -This header introduces string types, character traits and a set of converting functions:

SCOPE OF PROPOSED SYSTEM

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitation of the existing system .The system provide proper security and reduces the manual effort.

Some Advantages of the proposed system are :-

• We can edit the marks of the student easily and generate the report again

• It saves the time of the teacher to calculate the percentage and the grade or rank and pass or fail.

• This software reduces paper work.

• It is easy to handle student's record.

• This software saves the time.

• Information of each student stores permanently.

LIMITATIONS

• This system suitable for only small schools.

• Online facility is not available.

• Though we have completed this project with all our efforts but has certain limitation like it cannot be operated in networking, the working of project is slow.

SYSTEM DESIGN

System design is a solution, a "HOW TO" approach to the creation of a new system. It translates system requirements into ways by which they can be made operational. It is a translational from a user-oriented document to a document-oriented programmers. For that, it provides the understanding and procedural details necessary for the implementation. Here we use Flowchart to supplement the working of the new system. The system thus made should be reliable, durable and above all should have least possible maintenance costs. It should overcome all the drawbacks of the Old existing system and most important of all meet the user requirements.

CONCLUSION

 This project is more helpful to the school teacher who has to manage the marks and grades of the Physics, Chemistry, Mathematics, English and Computer Science of his students. Since it reduces the effort of a teacher at some extent and they can put the same efforts in improving their contents so that out new generations will get more advance. And also, It was a wonderful and learning experience for us while working on this project. The project took us to various phases of programming and gave a real insight into the world of programming. The joy of work and the thrill involved while tackling with various problems. Apart from the technical learning we learned how to work as a team.

Thank You

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<u>BIBLIOGRAPHY</u>

Some books and websites which helped us to develop our project are :

C++ E. Balagurusami – C++

https://www.tutorialspoint.com/cplusplus/

https://www.javatpoint.com/cpp-oops-concepts

https://en.wikipedia.org/wiki/Object-oriented_programming