**STUDENT MANAGMENT SYSTEM**

**Programming Fundamentals Lab (COMP-111L)**

**Logo, company name

Description automatically generated**

**Submitted to: Mr Osama**

**Submitted by:**

1. **Obaidullah**
2. **Zakirullah**
3. **Rohail**
4. **Ahmad Saleem**

Department of IT & Computer Sciences

Pak-Austria Fachhochschule Institute of Applied Sciences and Technology

Date :30/Jan/2022

**Introduction:**

This is the program where you can easily add, store and do modification, furthermore you can delete, search and see all the data at run time.

Moreover, data stored can be seen all together as well as singularly. Thus making the program a bit more efficient.

Other features of this program is that the program is capable of calculating the total and average of the marks obtained by the student and these results can be seen for each student individually.

The program has a main menu which has 6 options:

1: CREATE STUDENT REPORT CARD

2: VIEW ALL STUDENT REPORT CARDS.

3: VIEW A SINGLE STUDENT'S REPORT CARD.

4: MODIFY A REPORT CARD.

5: RESULT.

6: DELETE RECORD.

**Objectives:**

It’s a program which can easily assist an employee who is dealing with the data of students to effectively record data of students.

This system saves the time of the administrator.

If provided to the students, they can check their record without any employee. Anyone can see their result by entering their roll number only, administration can modify it and even delete any student’s data if they wish, furthermore this program also shows the average of students thus providing an overall mark system as well.

This program has many capabilities which can ease the task of any organizations, university’s, school’s administration.

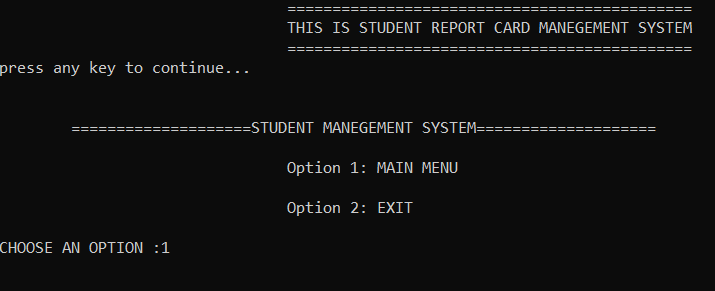
**What we learnt from this project:**

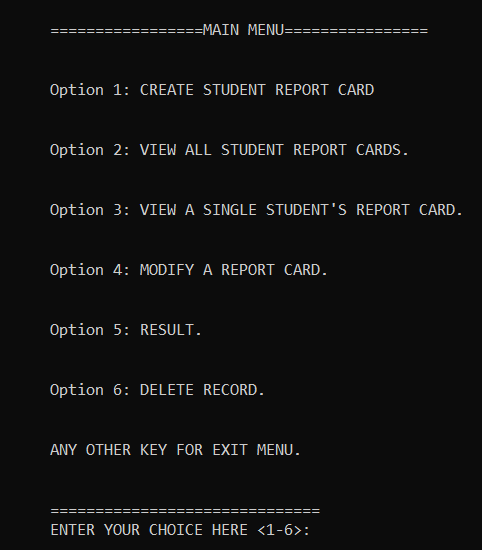
We learnt quite a lot of things from working on this project. Firstly, we learnt how to use file handling in C++. Furthermore, we also learnt how to implement our cpp knowledge in creating usable programs which can be of some help in the world albeit this program is far from being a professional program, but it was a good way to learn a little bit more about C++ programs and their real world applications. Also, this project also served as a good practice of working in groups which promotes a professional environment which we will come across later on.

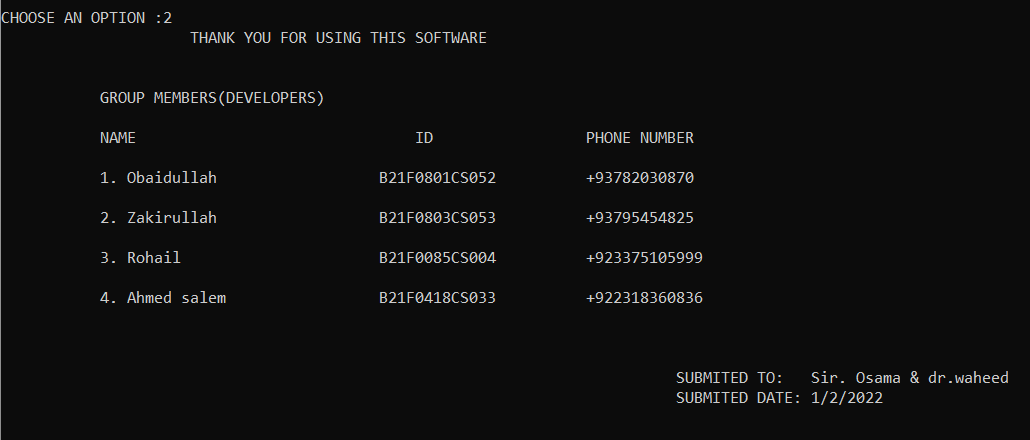
**Code:**

|  |
| --- |
| **#include <iostream>**  **#include<fstream>//used to open a file for modification**  **using namespace std;**  **struct scholar //structure used to make a block of variables**  **{**  **char name[80];**  **string id;**  **int roll;**  **float pro,ap,english,ict,sum,average;**  **};//all the prototypes of functions being used in program**  **void intro();//introduction function**  **void main\_menu();//funtion to display main menu of project**  **void accept\_data();//funtion used to enter student data**  **void view\_Specific(int);//funtion being used to display record of just one student**  **void view\_all();//function used to display all the student's records**  **void result(int);//function being used to display a student's record**  **void delete\_record(int);//function being used to delete student record**  **void modify(int);// for modification ofstudent record**  **int main()**  **{**  **char option;**  **intro();//intro function of program**  **do{**  **cout<<endl<<endl;**  **cout<<"\t====================STUDENT MANEGEMENT SYSTEM====================\n";**  **cout<<endl;**  **cout<<"\t\t\t\tOption 1: MAIN MENU\n\n"; //if chosen main menu function will initiate**  **cout<<"\t\t\t\tOption 2: EXIT\n\n";**  **cout<<"CHOOSE AN OPTION :"; //used to prompt the user to choose an option**  **cin>>option;**  **switch(option)**  **{**  **case '1':**  **{**  **main\_menu();**  **break;**  **}**  **case '2': //case 2 is implemented if the user wants to exit the program**  **{**  **cout << "\t\t THANK YOU FOR USING THIS SOFTWARE"<<endl;**  **cout<<endl<<endl;**  **cout<<"\t GROUP MEMBERS(DEVELOPERS)";**  **cout << "\n\n";**  **cout << "\t NAME ID PHONE NUMBER \n\n";**  **cout << "\t 1. Obaidullah B21F0801CS052 +93782030870 \n\n";**  **cout << "\t 2. Zakirullah B21F0803CS053 +93795454825 \n\n";**  **cout << "\t 3. Rohail B21F0085CS004 +923375105999 \n\n";**  **cout << "\t 4. Ahmed Saleem B21F0418CS033 +922318360836 \n\n";**  **cout << "\n\n";**  **cout<<"\t\t\t\t\t\t\t\t\t SUBMITED TO: Sir. Osama & dr.waheed\n";**  **cout<<"\t\t\t\t\t\t\t\t\t SUBMITED DATE: 1/2/2022 \n\n"; //diplaying info of group members and instructors**  **}**  **}**  **}**  **while(option!='2'); //loop will run till the user does not enter 2**  **return 0;**  **}**  **void accept\_data( )**  **{**  **scholar sch;**  **ofstream outfile; //ofstream used for implimentation of outputting file**  **outfile.open("Report.txt",ios::app|ios::binary);**  **if(outfile.fail())//if file does not exist the following will happen**  **{**  **cout<<"This file can not be opened...press enter key";**  **cin.ignore();**  **cin.get();**  **}**  **cout<<endl<<endl;**  **cout<<"\t\t\t\t=======CREATE A REPORT CARD========\n\n";**  **cout<<"ENTER YOUR FULL NAME :";**  **cin.ignore();**  **cin.getline(sch.name,80);**  **cout<<"ENTER YOUR ID NUMBER :";**  **cin>>sch.id;**  **cout<<"ENTER YOUR ROLL NUMBER :";**  **cin>>sch.roll;**  **cout<<"ENTER YOUR PROGRAMMING MARK :";**  **cin>>sch.pro;**  **cout<<"ENTER YOUR APPLIED PHYSICS MARK :";**  **cin>>sch.ap;**  **cout<<"ENTER YOUR ENGLISH & COMMUNICATION SKILL MARK :";**  **cin>>sch.english;**  **cout<<"ENTER YOUR ICT MARK :";**  **cin>>sch.ict;**  **sch.sum=sch.pro+sch.ap+sch.english+sch.ict;//sum of marks in all the subjects**  **sch.average=(sch.sum/4);//finding average marks accross all subjects**  **outfile.write(reinterpret\_cast<char \*> (&sch), sizeof(scholar));//used to change one pointer data type to another**  **outfile.close();**  **cout<<endl;**  **cout<<"\t\t\t\tTHE FILE HAS BEEN SUCCESSFULLY SAVED"<<endl;**  **cout<<endl;**  **cout<<"press any key to continue....";**  **cin.ignore();**  **cin.get();**  **}**  **void intro()**  **{**  **cout<<"\t\t\t\t============================================="<<endl;**  **cout<<"\t\t\t\tTHIS IS STUDENT REPORT CARD MANEGEMENT SYSTEM"<<endl;**  **cout<<"\t\t\t\t============================================="<<endl;**  **cout<<"press any key to continue...";**  **cin.ignore();**  **}**  **void main\_menu()//main menu function body**  **{**  **char op;// op stands for options**  **cout<<endl<<endl;**  **cout<<"\t\t\t\t=================MAIN MENU================\n\n"<<endl;**  **cout<<"\t\t\t\tOption 1: CREATE STUDENT REPORT CARD\n\n."<<endl;**  **cout<<"\t\t\t\tOption 2: VIEW ALL STUDENT REPORT CARDS.\n\n"<<endl;**  **cout<<"\t\t\t\tOption 3: VIEW A SINGLE STUDENT'S REPORT CARD.\n\n"<<endl;**  **cout<<"\t\t\t\tOption 4: MODIFY A REPORT CARD.\n\n"<<endl;**  **cout<<"\t\t\t\tOption 5: RESULT.\n\n"<<endl;**  **cout<<"\t\t\t\tOption 6: DELETE RECORD.\n\n"<<endl;**  **cout<<"\t\t\t\tANY OTHER KEY FOR EXIT MENU.\n\n"<<endl;**  **cout<<"\t\t\t\t=============================="<<endl;**  **cout<<"\t\t\t\tENTER YOUR CHOICE HERE <1-6>:";**  **cin>>op;**  **cout<<endl;**  **switch(op)**  **{**  **case '1':**  **{**  **accept\_data(); ///it will accepty data and will save in specific file**  **break;**  **}**  **case '2':**  **{**  **view\_all();//will go to the function and will show all the saved data**  **break;**  **}**  **case '3':**  **{**  **int num;**  **cout<<"ENTER YOUR ROLL NUMBER :";**  **cin>>num;**  **view\_Specific(num);//viewing student data for specific student by roll num**  **break;**  **}**  **case '4':**  **{**  **int num;**  **cout<<"ENTER YOUR ROLL NUMBER :";**  **cin>>num;**  **modify(num);//for modifying record of student**  **break;**  **}**  **case '5':**  **{**  **int num;**  **cout<<"ENTER YOUR ROLL NUMBER :";**  **cin>>num;**  **cout<<endl;**  **result(num);//will run the result funtion showing data of a specific student**  **break;**  **}**  **case '6':**  **{**  **int num;**  **cout<<"ENTER YOUR ROLL NUMBER :";**  **cin>>num;**  **cout<<endl;**  **delete\_record(num);//funtion to delete record of a student**  **break;**  **}**  **}**  **}**  **void view\_all()//displaying all the data that is saved in the file**  **{**  **scholar sch;**  **ifstream infile;**  **bool check=false;//bool variable used to ckeck status of record**  **infile.open("Report.txt",ios::app|ios::binary);**  **if(infile.fail())**  **{**  **cout<<"The file could'nt open.....press enter key...";**  **cin.ignore();**  **cin.get();**  **}**  **cout<<"\n\n";**  **cout<<"\t\t\t\tLIST OF ALL REPORT CARDS"<<endl;**  **cout<<"=================================================================================="<<endl;**  **while(infile.read(reinterpret\_cast<char\*>(&sch),sizeof(scholar)))//using re-interpret cast function for converting pointer to another data type**  **{**  **cout<<"\t\t\t\tSTUDENT NAME :"<<sch.name<<endl<<endl;**  **cout<<"\t\t\t\tSTUDENT ROLL NUMBER :"<<sch.roll<<endl<<endl;**  **cout<<"\t\t\t\tPROGRAMMING MARKS :"<<sch.pro<<endl<<endl;**  **cout<<"\t\t\t\tAPPLIED PHYSICS MARKS :"<<sch.ap<<endl<<endl;**  **cout<<"\t\t\t\tENGLISH & COMMUNICATION SKILL MARKS :"<<sch.english<<endl<<endl;**  **cout<<"\t\t\t\tICT MARKS :"<<sch.ict<<endl<<endl;**  **cout<<"\t\t\t\tSUM :"<<sch.sum<<endl<<endl;**  **cout<<"\t\t\t\tAVERAGE :"<<sch.average<<endl<<endl;**  **cout<<"=================================================================================="<<endl;**  **check=true;**  **}**  **infile.close();**  **if(check==false)//if no record is found**  **{**  **cout<<"\t\t\t\tNO RECORD FOUND..."<<endl<<endl;**  **}**  **cout<<"press any key to continue....";**  **cin.ignore();**  **cin.get();**  **main\_menu();**  **}**  **void view\_Specific(int num)**  **{//viewing record of a specific record**  **scholar sch;**  **ifstream infile;**  **infile.open("Report.txt",ios::app|ios::binary);//app stands or append, used so that the data which is already in file isn't overwritten.**  **if(infile.fail())**  **{**  **cout<<"THE FILE COULD NOT BE OPENED...";**  **cin.ignore();**  **cin.get();**  **}**  **bool equality=false;**  **cout<<"\t\t\t\t==========VIEW A STUDENT'S REPORT==========\n\n";**  **while(infile.read(reinterpret\_cast<char\*>(&sch),sizeof(scholar)))//re-interpret cast is used to change datatype of one pointer variable to another pointer datatype**  **{**  **if(sch.roll==num)**  **{**  **cout<<"\t\t\t\tSTUDENT NAME :"<<sch.name<<endl;**  **cout<<"\t\t\t\tSTUDENT ROLL NUMBER :"<<sch.roll<<endl;**  **cout<<"\t\t\t\tPROGRAMMING MARK :"<<sch.pro<<endl;**  **cout<<"\t\t\t\tAPPLIED PHYSICS MARKS :"<<sch.ap<<endl<<endl;**  **cout<<"\t\t\t\tENGLISH & COMMUNICATION SKILL MARKS :"<<sch.english<<endl<<endl;**  **cout<<"\t\t\t\tICT MARKS :"<<sch.ict<<endl<<endl;**  **cout<<"\t\t\t\tSUM :"<<sch.sum<<endl;**  **cout<<"\t\t\t\tAVERAGE :"<<sch.average<<endl;**  **cout<<"\t\t\t\t================================================"<<endl;**  **equality=true;**  **}**  **}**  **infile.close();**  **if(equality==false)//to check if a record is present or not**  **{**  **cout<<"\t\t\t\tRECORD NOT FOUND..."<<endl;**  **}**  **cout<<endl;**  **cout<<"press any key to continue...";**  **cin.ignore();**  **cin.get();**  **main\_menu();//to go back to the main menu in case of no record found**  **}**  **void result(int num)//result funtion to just display result of a single student**  **{**  **scholar sch;**  **ifstream infile;**  **infile.open("Report.txt",ios::app|ios::binary);**  **if(infile.fail())**  **{**  **cout<<"THE FILE COULD NOT BE OPENED..."<<endl;**  **cin.ignore();**  **cin.get();**  **}**  **bool eq=false;**  **cout<<"\t\t\t\t===========VIEW A SINGLE STUDENT RESULT==========\n\n";**  **while(infile.read(reinterpret\_cast<char\*>(&sch),sizeof(scholar)))//used to change one pointer datatype to another data type**  **{**  **if(sch.roll==num)**  **{**  **cout<<"\t\t\t\tSTUDENT NAME :"<<sch.name<<endl<<endl;**  **cout<<"\t\t\t\tPROGRAMMING MARK :"<<sch.pro<<endl<<endl;**  **cout<<"\t\t\t\tAPPLIED PHYSICS MARKS :"<<sch.ap<<endl<<endl;**  **cout<<"\t\t\t\tENGLISH & COMMUNICATION SKILL MARKS :"<<sch.english<<endl<<endl;**  **cout<<"\t\t\t\tICT MARKS :"<<sch.ict<<endl<<endl;**  **cout<<"\t\t\t\tSUM :"<<sch.sum<<endl<<endl;**  **cout<<"\t\t\t\tAVERAGE :"<<sch.average<<endl<<endl;**  **cout<<"\t\t\t\t=================================================="<<endl;**  **eq=true;**  **}**  **}**  **infile.close();//to close the infile**  **if(eq==false)//in case record not found**  **{**  **cout<<"\t\t\t\tRECORD NOT FOUND..."<<endl;**  **}**  **cout<<endl;**  **cout<<"press any key to continue...";**  **cin.ignore();**  **cin.get();**  **main\_menu();// go back to main menu**  **}**  **void modify(int num)**  **{//modify function**  **scholar sch;**  **fstream infile;**  **infile.open("Report.txt",ios::binary|ios::in|ios::out);**  **if(infile.fail())//if file does not exist display appropriate message**  **{**  **cout<<"THE FILE COULD NOT BE OPENED..."<<endl;**  **cin.ignore();**  **cin.get();**  **}**  **bool checker=false;**  **cout<<"\t\t\t\t==========MODIFY A REPORT CARD==========\n\n";**  **while(!infile.eof() && checker==false)//.eof stands for end of file**  **{**  **infile.read(reinterpret\_cast<char\*>(&sch),sizeof(scholar));**  **{**  **if(sch.roll==num)**  **{**  **cout<<"\t\t\t\tSTUDENT NAME :"<<sch.name<<endl<<endl;**  **cout<<"\t\t\t\tSTUDENT ROLL NUMBER :"<<sch.roll<<endl<<endl;**  **cout<<"\t\t\t\tPROGRAMMING MARK :"<<sch.pro<<endl<<endl;**  **cout<<"\t\t\t\tAPPLIED PHYSICS MARKS :"<<sch.ap<<endl<<endl;**  **cout<<"\t\t\t\tENGLISH & COMMUNICATION SKILL MARKS :"<<sch.english<<endl<<endl;**  **cout<<"\t\t\t\tICT MARKS :"<<sch.ict<<endl<<endl;**  **cout<<"============================================="<<endl;**  **cout<<"\t\tENTER THE NEW INFORMATION"<<endl;**  **cout<<"============================================="<<endl;**  **cout<<"ENTER YOUR FULL NAME :";**  **cin.ignore();**  **cin.getline(sch.name,80);**  **cout<<"ENTER YOUR ROLL NUMBER :";**  **cin>>sch.roll;**  **cout<<"ENTER YOUR ID NUMBER :";**  **cin>>sch.id;**  **cout<<"ENTER YOUR PROGRAMMING MARK :";**  **cin>>sch.pro;**  **cout<<"ENTER YOUR APPLIED PHYSICS MARK :";**  **cin>>sch.ap;**  **cout<<"ENTER YOUR ENGLISH & COMMUNICATION SKILL MARK :";**  **cin>>sch.english;**  **cout<<"ENTER YOUR ICT MARK :";**  **cin>>sch.ict;**  **sch.sum=sch.pro+sch.ap+sch.english+sch.ict;// summing all the marks of a single student**  **sch.average=(sch.sum/4);//used to find the avg of a student's marks**  **int pos=(-1)\*static\_cast<int>(sizeof(scholar));//static typecasting used**  **infile.seekp(pos,ios::cur);//used to change the position of pointer to another location**  **infile.write(reinterpret\_cast<char \*> (&sch), sizeof(scholar));**  **cout<<endl;**  **cout<<"\t\t\t\tTHE FILE IS SUCCESSFULLY updated"<<endl;**  **checker=true;**  **}**  **}**  **}**  **infile.close();**  **if(checker==false)//bool check to see if record is present or not**  **{**  **cout<<"\t\t\t\tRECORD NOT FOUND"<<endl;**  **}**  **cout<<endl;**  **cout<<"press any key to continue...";**  **cin.ignore();**  **cin.get();**  **main\_menu();**  **}**  **void delete\_record(int num)**  **{//funtion used to delete any record stored at run time**  **scholar sch;**  **ifstream infile;**  **infile.open("Report.txt",ios::binary);**  **if(!infile)**  **{**  **cout<<"THE FILE COULD NOT BE OPENED..."<<endl;**  **cin.ignore();**  **cin.get();**  **}**  **ofstream outfile;**  **outfile.open("Record2.txt",ios::binary);**  **infile.seekg(0,ios::beg);// used to start pointer position from the beginning of the file**  **cout<<"\t\t\t\t===========DELETE A REPORT CARD==========\n\n";**  **while(infile.read(reinterpret\_cast<char\*>(&sch),sizeof(scholar)))// re-interpret cast used to change data type of one pointer to another pointer**  **{**  **if(sch.roll!=num)//if conditional statement**  **{**  **outfile.write(reinterpret\_cast<char\*>(&sch),sizeof(scholar));**  **}**  **}**  **infile.close();**  **outfile.close();**  **remove("Report.txt");//to remove the record**  **rename("Record2.txt","Report.txt");**  **cout<<endl;**  **cout<<"\t\t\t\tRECORD SUCCESSFULLY DELETED"<<endl;**  **cout<<"press any key to continue...";**  **cin.ignore();**  **cin.get();**  **main\_menu();//used to display main menu again**  **}** |

**Output:**

****

****

****

