**Student Report Management System**

#include<iostream>

#include<fstream>

#include<iomanip>

using namespace std;

// the class that stores data

class student

{

int rollno;

char name[50];

int eng\_marks, math\_marks, sci\_marks, lang2\_marks, cs\_marks;

double average;

char grade;

public:

void getdata();

void showdata() const;

void calculate();

int retrollno() const;

}; //class ends here

void student::calculate()

{

average=(eng\_marks+math\_marks+sci\_marks+lang2\_marks+cs\_marks)/5.0;

if(average>=90)

grade='A';

else if(average>=75)

grade='B';

else if(average>=50)

grade='C';

else

grade='F';

}

void student::getdata()

{

cout<<"\nEnter student's roll number: ";

cin>>rollno;

cout<<"\n\nEnter student name: ";

cin.ignore();

cin.getline(name,50);

cout<<"\nAll marks should be out of 100";

cout<<"\nEnter marks in English: ";

cin>>eng\_marks;

cout<<"\nEnter marks in Math: ";

cin>>math\_marks;

cout<<"\nEnter marks in Science: ";

cin>>sci\_marks;

cout<<"\nEnter marks in 2nd language: ";

cin>>lang2\_marks;

cout<<"\nEnter marks in Computer science: ";

cin>>cs\_marks;

calculate();

}

void student::showdata() const

{

cout<<"\nRoll number of student : "<<rollno;

cout<<"\nName of student : "<<name;

cout<<"\nEnglish : "<<eng\_marks;

cout<<"\nMaths : "<<math\_marks;

cout<<"\nScience : "<<sci\_marks;

cout<<"\nLanguage2 : "<<lang2\_marks;

cout<<"\nComputer Science :"<<cs\_marks;

cout<<"\nAverage Marks :"<<average;

cout<<"\nGrade of student is :"<<grade;

}

int student::retrollno() const

{

return rollno;

}

//function declaration

void create\_student();

void display\_sp(int);//display particular record

void display\_all(); // display all records

void delete\_student(int);//delete particular record

void change\_student(int);//edit particular record

//MAIN

int main()

{

char ch;

cout<<setprecision(2);

do

{

char ch;

int num;

system("cls");

cout<<"\n\n\n\tMENU";

cout<<"\n\n\t1.Create student record";

cout<<"\n\n\t2. Search student record";

cout<<"\n\n\t3. Display all students records ";

cout<<"\n\n\t4.Delete student record";

cout<<"\n\n\t5.Modify student record";

cout<<"\n\n\t6.Exit";

cout<<"\n\n What is your Choice (1/2/3/4/5/6) ";

cin>>ch;

system("cls");

switch(ch)

{

case '1': create\_student(); break;

case '2': cout<<"\n\n\tEnter The roll number ";

cin>>num;

display\_sp(num); break;

case '3': display\_all(); break;

case '4': cout<<"\n\n\tEnter The roll number: ";

cin>>num;

delete\_student(num);break;

case '5': cout<<"\n\n\tEnter The roll number "; cin>>num;

change\_student(num);break;

case '6': cout<<"Exiting, Thank you!";exit(0);

}

}while(ch!='6');

return 0;

}

//write student details to file

void create\_student()

{

student stud;

ofstream oFile;

oFile.open("student.dat",ios::binary|ios::app);

stud.getdata();

oFile.write(reinterpret\_cast<char \*> (&stud), sizeof(student));

oFile.close();

cout<<"\n\nStudent record Has Been Created ";

cin.ignore();

cin.get();

}

// read file records

void display\_all()

{

student stud;

ifstream inFile;

inFile.open("student.dat",ios::binary);

if(!inFile)

{

cout<<"File could not be opened !! Press any Key to exit";

cin.ignore();

cin.get();

return;

}

cout<<"\n\n\n\t\tDISPLAYING ALL RECORDS\n\n";

while(inFile.read(reinterpret\_cast<char \*> (&stud), sizeof(student)))

{

stud.showdata();

cout<<"\n\n====================================\n";

}

inFile.close();

cin.ignore();

cin.get();

}

//read specific record based on roll number

void display\_sp(int n)

{

student stud;

ifstream iFile;

iFile.open("student.dat",ios::binary);

if(!iFile)

{

cout<<"File could not be opened... Press any Key to exit";

cin.ignore();

cin.get();

return;

}

bool flag=false;

while(iFile.read(reinterpret\_cast<char \*> (&stud), sizeof(student)))

{

if(stud.retrollno()==n)

{

stud.showdata();

flag=true;

}

}

iFile.close();

if(flag==false)

cout<<"\n\nrecord does not exist";

cin.ignore();

cin.get();

}

// modify record for specified roll number

void change\_student(int n)

{

bool found=false;

student stud;

fstream fl;

fl.open("student.dat",ios::binary|ios::in|ios::out);

if(!fl)

{

cout<<"File could not be opened. Press any Key to exit...";

cin.ignore();

cin.get();

return;

}

while(!fl.eof() && found==false)

{

fl.read(reinterpret\_cast<char \*> (&stud), sizeof(student));

if(stud.retrollno()==n)

{

stud.showdata();

cout<<"\n\Enter new student details:"<<endl;

stud.getdata();

int pos=(-1)\*static\_cast<int>(sizeof(stud));

fl.seekp(pos,ios::cur);

fl.write(reinterpret\_cast<char \*> (&stud), sizeof(student));

cout<<"\n\n\t Record Updated";

found=true;

}

}

fl.close();

if(found==false)

cout<<"\n\n Record Not Found ";

cin.ignore();

cin.get();

}

//delete record with particular roll number

void delete\_student(int n)

{

student stud;

ifstream iFile;

iFile.open("student.dat",ios::binary);

if(!iFile)

{

cout<<"File could not be opened... Press any Key to exit...";

cin.ignore();

cin.get();

return;

}

ofstream oFile;

oFile.open("Temp.dat",ios::out);

iFile.seekg(0,ios::beg);

while(iFile.read(reinterpret\_cast<char \*> (&stud), sizeof(student)))

{

if(stud.retrollno()!=n)

{

oFile.write(reinterpret\_cast<char \*> (&stud), sizeof(student));

}

}

oFile.close();

iFile.close();

remove("student.dat");

rename("Temp.dat","student.dat");

cout<<"\n\n\tRecord Deleted ..";

cin.ignore();

cin.get();

}