#include <iostream>

#include <fstream>

#include <cstring>

#include <iomanip>

#include<cstdlib>

#define max 50

using namespace std;

class Student

{

char name[max];

int rollNo;

int year;

int division;

char address[50];

friend class FileOperations;

public: Student()

{

strcpy(name,"");

rollNo=year=division=0;

strcpy(address,"");

}

Student(char name[max],int rollNo,int year,int division,char address[max])

{

strcpy(this->address,address);

strcpy(this->name,name);

this->division=division;

this->rollNo=rollNo;

this->year=year;

}

int getRollNo()

{

return rollNo;

}

void displayStudentData()

{

cout<<endl<<setw(3)<<rollNo<<setw(10)<<name<<setw(3)<<year<<setw(2)<<division<<setw(10)<<address;

}

};

class FileOperations

{

fstream file;

public:FileOperations(char \*name)

{

this->file.open(name,ios::in|ios::out|ios::ate|ios::binary);

}

void insertRecord(int rollNo,char name[max],int year,int division,char address[max])

{

Student s=Student(name,rollNo,year,division,address);

file.seekp(0,ios::end);

file.write((char\*)&s,sizeof(Student));

file.clear();

}

void displayAllRecords()

{

Student s;

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

while(file.read((char \*)&s,sizeof(Student)))

{

s.displayStudentData();

}

file.clear();

}

void displayRecord(int rollNo)

{

Student s;

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

void \*p;

while(file.read((char \*)&s,sizeof(Student)))

{

if(s.rollNo==rollNo)

{

s.displayStudentData();

break;

}

}

if(p==NULL)

throw "Element not present";

file.clear();

}

void deleteRecord(int rollNo)

{

ofstream newFile("new.txt",ios::binary);

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

bool flag=false;

Student s;

while(file.read((char \*)&s,sizeof(s)))

{

if(s.rollNo==rollNo)

{

flag=true;

continue;

}

newFile.write((char \*)&s,sizeof(s));

}

if(!flag)

{

cout<<"Element Not Present";

}

file.close();

newFile.close();

remove("student.txt");

rename("new.txt","student.txt");

file.open("student.txt",ios::in|ios::ate|ios::out|ios::binary);

}

~FileOperations()

{

file.close();

cout<<"Closing file..";

}

};

int main()

{

ofstream newFile("student.txt",ios::app|ios::binary);

newFile.close();

FileOperations file((char \*)"student.txt");

int rollNo,year,division,choice=0;

char name[max],address[max];

while(choice!=5)

{

cout<<"\n\*\*\*\*\*Phone Book\*\*\*\*\*\n";

cout<<"1) Add New Record\n";

cout<<"2) Display All Records\n";

cout<<"3) Display by RollNo\n";

cout<<"4) Deleting a Record\n";

cout<<"5) Exit\n";

cout<<"Choose your choice : ";

cin>>choice;

switch(choice)

{

case 1 :

cout<<endl<<"Enter RollNo and name : \n";

cin>>rollNo>>name;

cout<<"Enter Year and Division : \n";

cin>>year>>division;

cout<<"Enter address : \n";

cin>>address;

file.insertRecord(rollNo,name,year,division,address);

break;

case 2 :

file.displayAllRecords();

break;

case 3 :

cout<<"Enter Roll Number";

cin>>rollNo;

try

{

file.displayRecord(rollNo);

}

catch(const char \*str)

{

cout<<str;

}

break;

case 4:

cout<<"Enter rollNo";

cin>>rollNo;

file.deleteRecord(rollNo);

break;

case 5 :break;

}

}

}