#include<iostream>

#include <fstream>

using namespace std;

typedef struct student

{

int rollno;

char name[20];

char cls[10];

char div[10];

char add[50];

}student;

class seq

{

public:

int r;

int HT[10];

seq(){

r = 1;

for(int i = 0; i<10; i++)

HT[i] = -1;

}

void search();

void insert();

void print();

void modify();

};

fstream master, temp;

int main()

{

int op, rollno;

student x;

seq s;

master.open("StudInfo.txt", ios::out);

master.close();

do{

cout<<"\n 1. Insert a record";

cout<<"\n 2. Modify a record";

cout<<"\n 3. Search a record";

cout<<"\n 4. Print a record";

cout<<"\n 5. Quit";

cout<<"\n\n Enter your choice : ";

cin>>op;

switch(op)

{

case 1:

s.insert();

break;

case 2:

s.modify();

break;

case 3:

s.search();

break;

case 4:

s.print();

break;

}

}while(op != 5);

return 0;

}

void seq :: insert()

{

student st;

master.open("StudInfo.txt", ios::app|ios::in|ios::out);

master.clear();

cout<<"\n Enter the record : \n";

cout<<"\n Roll No. : Name : Class : Division : Address\n";

cin>>st.rollno>>st.name>>st.cls>>st.div>>st.add;

//Prepare index of hash table

int index = st.rollno%10;

HT[index] = r++;

//Now write a record into file

master.write((char \*)&st, sizeof st);

master.close();

}

void seq :: print()

{

student st;

master.open("StudInfo.txt", ios::in);

cout<<"\n Hash Index : Roll No. : Name : Class : Division : Address\n";

for(int i = 0; i<10 ; i++)

{

if(HT[i]!=-1)

{

int rec\_no = HT[i];

//cout<<rec\_no<<endl;

int loc = (rec\_no-1)\*sizeof(st);

master.seekp(loc);

master.read((char \*)&st, sizeof st);

cout<<i<<" "<<st.rollno<<" "<<st.name<<" "<< st.cls<<" "<<st.div<<" "<<st.add<<endl;

}

}

master.close();

}

void seq :: modify()

{

student st;

int rec\_no, roll\_no;

master.open("StudInfo.txt", ios::in|ios::out); //original file

cout<<"\n Enter the roll no to be modified : ";

cin>>roll\_no;

rec\_no = HT[roll\_no%10];

int loc = (rec\_no-1)\*sizeof(st);

master.seekp(loc);

cout<<"\n Enter the record : \n";

cout<<"\n Roll No. : Name : Class : Division : Address\n";

cin>>st.rollno>>st.name>>st.cls>>st.div>>st.add;

master.write((char \*)&st, sizeof st);

master.close();

cout<<"\n";

}

void seq :: search()

{

student st;

int roll\_no, rec\_no;

master.open("StudInfo.txt", ios::in);

cout<<"\n Enter the roll no to be searched : ";

cin>>roll\_no;

rec\_no = HT[roll\_no%10];

//cout<<rec\_no<<endl;

if(rec\_no != -1)

{

int loc = (rec\_no-1)\*sizeof(st);

master.seekp(loc);

master.read((char \*)&st, sizeof st);

cout<<"\n record found \n ";

cout<<st.rollno<<" "<<st.name<<" "<< st.cls<<" "<<st.div<<" "<<st.add<<endl;

}

else

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

cout<<"\n";

master.close();

}