AIM:- a. Create a database using array of structures and perform following operations on it: i.Add record

Assignment 3

ii.Display Database

iii.Search record (binary search)

b.For database implemented using array, perform

iv.Modify record

v.Delete record

vi.Sort records(Bubble sort)

OBJECTIVE:-

To create database with functions such as add record, display record, search record, modify record, delete record, sort record using array of structures.

Theory :-

## Arrays of Structures

Since an array can contain similar elements, the combination having structures within an array is an array of structures. To declare an array of structures, you must first define a structure and then declare an array variable of that type. For example, to store addresses of 100 members of the council, you need to create an array.

Now, to declare a 100-element array of structures of type addr (defined in previous chapters), we will write :

addr mem\_addr [100];

This creates 100 sets of variables that are organised as defined in the structure addr. To access a specific structure, index the structure name. For instance, to print the houseno of structure 8, write :

cout << mem\_addr[7].houseno ;

Sourcecode :-

#include<iostream>

#include<string.h>

using namespace std;

typedef struct student

{

int roll;

char name[30];

char div;

int cont;

char addr[30];

};

void input(student s[],int a1)

{

int i;

for(i=0;i<a1;i++)

{

cout<<"\nEnter roll number of student : ";

cin>>s[i].roll;

cout<<"Enter name students : ";

cin>>s[i].name;

cout<<"Enter division of students : ";

cin>>s[i].div;

cout<<"Enter contact number of students : ";

cin>>s[i].cont;

cout<<"Enter address of students : ";

cin>>s[i].addr;

cout<<"\n";

}

}

void display(student s[],int a1)

{

cout<<"Roll no\tName\tDivision\tContact\tAddress\n";

for(int i=0;i<a1;i++)

{

cout<<s[i].roll<<"\t"<<s[i].name<<"\t"<<s[i].div<<"\t\t"<<s[i].cont<<"\t"<<s[i].addr<<"\n";

}

}

void add(student s[],int a3,int a1)

{

int i;

for(i=a1;i<(a1+a3);i++)

{

cout<<"\nEnter roll number of student : ";

cin>>s[i].roll;

cout<<"\nEnter name students : ";

cin>>s[i].name;

cout<<"\nEnter division of students : ";

cin>>s[i].div;

cout<<"\nEnter contact number of students : ";

cin>>s[i].cont;

cout<<"\nEnter address of students : ";

cin>>s[i].addr;

}

}

void edit(student s[],int a4,int a1)

{

int i,flag=0;

for(i=0;i<a1;i++)

{

if(s[i].roll==a4)

{

cout<<"\nEnter roll number of student : ";

cin>>s[i].roll;

cout<<"Enter name students : ";

cin>>s[i].name;

cout<<"Enter division of students : ";

cin>>s[i].div;

cout<<"Enter contact number of students : ";

cin>>s[i].cont;

cout<<"Enter address of students : ";

cin>>s[i].addr;

flag=flag+1;

}

}

if(flag=0)

{

cout<<"Roll number is not found..."<<endl;

}

}

void delet(student s[],int a5,int a1)

{

int i,j,a,d;

char b[30],c,e[30];

for(i=0;i<a1;i++)

{

if(s[i].roll==a5)

{

for(j=i;j<a1;j++)

{

s[j].roll=s[j+1].roll;

s[j].cont=s[j+1].cont;

s[j].div=s[j+1].div;

strcpy(s[j+1].name,s[j].name);

strcpy(s[j+1].addr,s[j].addr);

}

}

break;

}

}

int main()

{

int a1,i,a2,a3,a4,a5,c,k;

student s[100];

cout<<"\nEnter number of student :";

cin>>a1;

input(s,a1);

cout<<"\n";

display(s,a1);

p:cout<<"\n1.Add data"<<endl<<"2.Edit Data"<<endl<<"3.Delete Data"<<endl;

cin>>a2;

switch(a2)

{

case 1:

cout<<"Enter number of students :";

cin>>a3;

add(s,a3,a1);

c=a3+a1;

display(s,c);

break;

case 2:

cout<<"Enter roll number of student for edit :";

cin>>a4;

edit(s,a4,a1);

display(s,a1);

break;

case 3:

cout<<"Enter roll number of student for delete :";

cin>>a5;

delet(s,a5,a1);

cout<<"Roll no\tName\tDivision\tContact\tAddress\n";

for(k=0;k<(a1-1);k++)

{

cout<<s[i].roll<<"\t"<<s[i].name<<"\t"<<s[i].div<<"\t"<<s[i].cont<<"\t"<<s[i].addr;

}

break;

}

char ch;

cout<<"\nDo you want to continue (~press Y/N)\n";

cin>>ch;

if(ch=='y'||ch=='Y')

{

goto p;

}

return 0;

}

Output:-

/\*

Enter number of student :2

Enter roll number of student : 1

Enter name students : Nikit

Enter division of students : D

Enter contact number of students : 12345

Enter address of students : Nagpur

Enter roll number of student : 2

Enter name students : John

Enter division of students : A

Enter contact number of students : 12333

Enter address of students : NY

Roll no Name Division Contact Address

1 Nikit D 12345 Nagpur

2 John A 12333 NY

1.Add data

2.Edit Data

3.Delete Data

1

Enter number of students :1

Enter roll number of student : 3

Enter name students : Rahul

Enter division of students : B

Enter contact number of students : 12344

Enter address of students : Mumbai

Roll no Name Division Contact Address

1 Nikit D 12345 Nagpur

2 John A 12333 NY

3 Rahul B 12344 Mumbai

Do you want to continue (~press Y/N)

y

1.Add data

2.Edit Data

3.Delete Data

3

Enter roll number of student for delete :2

Roll no Name Division Contact Address

1 Nikit D 12345 Nagpur

3 Rahul B 12344 Mumbai

Do you want to continue (~press Y/N)

n

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Process exited after 127.1 seconds with return value 0

Press any key to continue . . .

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Conclusion:-

Created a database using concept of array of structures and performed following operations on it:

i.Add record

ii.Display Database

iii.Search record (binary search)