Name   : Resham Landge
Roll No : 2339

*******************************Assignment No : 12********************************

Title : Implement direct access file using hashing (chaining without replacement) perform following operations on it
        a. Create Database
        b. Display Database
        c. Add a record
        d. Search a record
        e. Modify a record

****


```cpp
#include<iostream>
#include<fstream>
#include<string.h>
#include<stdlib.h>
using namespace std;

class EMP                    //class declare
{
        public:
                typedef struct Employee
                {
                        char name[20];
                        int id,salary;
                }Rec;

                typedef struct Index
                {
                        int id,position;
                }Ind_Rec;

                Rec record;
                Ind_Rec Ind_record;

                void create();
                void display();
                void update();
                void Delete();
};
```

```cpp
void EMP::create()              //create function call using super class
{
        int i=0;
        char ch='y';

        fstream seqfile,indexfile;

        indexfile.open("IND.DAT",ios::in | ios::binary);
        seqfile.open("EMP.DAT",ios::out|ios::app | ios::binary);
        indexfile.seekg(0,ios::end);

        i=indexfile.tellg() / sizeof(Ind_record);
        i++;

        indexfile.close();
        indexfile.open("IND.DAT",ios::out | ios::app | ios::binary);

        do                      //do while loop call
        {
                cout<<"\n\tEnter Name : ";
                cin>>record.name;

                cout<<"\n\tEnter Employee Id : ";
                cin>>record.id;

                cout<<"\n\tEnter Salary : ";
                cin>>record.salary;

                seqfile.write((char*)&record,sizeof(record))<<flush;
                Ind_record.id=record.id;
                Ind_record.position=i;
                indexfile.write((char*)&Ind_record,sizeof(Ind_record))<<flush;

                i++;
                cout<<"\n\tDo U want Add More Records (y/n) : ";
                cin>>ch;
        }while(ch=='y'||ch=='Y');

        seqfile.close();
        indexfile.close();
}

void EMP::display()                     //display function call
{
```

```cpp
        fstream seqfile,indexfile;
        int i;

        indexfile.open("IND.DAT",ios::in | ios::binary);
        seqfile.open("EMP.DAT",ios::in | ios::binary);

        if(!indexfile)
        {
                cout<<"\n\tIndex File not Found : ";
                return;
        }
        cout<<"\n\tThe contents of file are..";

        while(indexfile.read((char*)&Ind_record,sizeof(Ind_record)))
        {
                i=(Ind_record.position-1)*sizeof(Rec);
                seqfile.seekg(i,ios::beg);
                seqfile.read((char*)&record,sizeof(record));

                if(record.id!=-1)
                {
                        cout<<"\n\tName = "<<record.name;
                        cout<<"\tEMP-ID = "<<record.id;
                        cout<<"\tSalary = "<<record.salary<<"\n\n";
                }
        }

        seqfile.close();
        indexfile.close();
}

void EMP::update()                      //update function call
{
        int pos=-1,id1,new_salary;
        char new_name[20];
        fstream seqfile,indexfile;

        indexfile.open("IND.DAT",ios::in | ios::binary);
        seqfile.open("EMP.DAT",ios::out | ios::in | ios::binary);

        if(!indexfile)
        {
                cout<<"\n\tIndex File not Found : ";
                return;
```

```cpp
		}

		cout<<"\n\tFor updation : \n\tEnter the ID for searching : ";
		cin>>id1;

		while(indexfile.read((char*)&Ind_record,sizeof(Ind_record)))
		{
			if(id1==Ind_record.id)
			{
				pos=Ind_record.position;
				break;
			}
		}

		if(pos==-1)
		{
			cout<<"\n\tThe Record Id not present\n";
			return;
		}

		cout<<"\n\tEnter the values for updation : \n\tName = ";
		cin>>new_name;

		cout<<"\n\tSalary = ";
		cin>>new_salary;

		int offset=(pos-1)*sizeof(record);
		seqfile.seekg(offset);

		record.id=id1;
		strcpy(record.name,new_name);
		record.salary=new_salary;
		seqfile.write((char*)&record,sizeof(record))<<flush;
		cout<<"\n\tThe rocord is updated\n";

		seqfile.close();
		indexfile.close();
}

void EMP::Delete()				//delete function call
{
		int pos=-1,id1;
		fstream seqfile,indexfile;
```

```cpp
indexfile.open("IND.DAT",ios::in | ios::binary);
seqfile.open("EMP.DAT",ios::in | ios::out | ios::binary);

if(!indexfile)
{
        cout<<"\n\tIndex File not Found : ";
        return;
}

cout<<"\n\tFor Deletion : \n\tEnter the ID for searcching : ";
cin>>id1;

while(indexfile.read((char*)&Ind_record,sizeof(Ind_record)))
{
        if(id1==Ind_record.id)
        {
                pos=Ind_record.position;
                Ind_record.id=-1;
                break;
        }
}

if(pos==-1)
{
        cout<<"\n\tThe Record Id not present\n";
        return;
}

int offset=(pos-1)*sizeof(record);
seqfile.seekg(offset);

strcpy(record.name," ");
record.id=-1;
record.salary=-1;

seqfile.write((char*)&record,sizeof(record));
offset=(pos-1)*sizeof(Ind_record);
indexfile.seekg(offset);
indexfile.write((char*)&Ind_record,sizeof(Ind_record));

seqfile.close();
indexfile.close();

cout<<"\n\tThe rocord is Deleted\n";
```

```cpp
        }

        int main()
        {
                EMP e;
                char ch='y';
                int choice;

                do
                {
                        cout<<"\n\t1.Create\n\t2.Display\n\t3.Update\n\t4.Delete\n\t5.Exit";
                        cout<<"\n\tEnter your choice : ";
                        cin>>choice;

                        switch(choice)
                        {
                                case 1:
                                        e.create();
                                        break;

                                case 2:
                                        e.display();
                                        break;

                                case 3:
                                        e.update();
                                        break;

                                case 4:
                                        e.Delete();
                                        break;

                                case 5:
                                        exit(0);

                                default:
                                        cout<<"\n\t***Invalid Choice***";
                        }
                        cout<<"\n\tDo U want to Continue(y/n) : ";
                        cin>>ch;
                }while(ch=='y'||ch=='Y');
        }
```

Output :

```
ubntu@ubuntu: ~/resham/dsf
ubntu@ubuntu:~/resham/dsf$ g++ ass12.cpp
ubntu@ubuntu:~/resham/dsf$ ./a.out

        1.Create
        2.Display
        3.Update
        4.Delete
        5.Exit
        Enter your choice : 1

        Enter Name : resham

        Enter Employee Id : 2339

        Enter Salary : 40000

        Do U want Add More Records (y/n) : y

        Enter Name : kalpesh

        Enter Employee Id : 40000

        Enter Salary : 34000
```

```
ubntu@ubuntu: ~/resham/dsf

        Do U want Add More Records (y/n) : n

        Do U want to Continue(y/n) : y

        1.Create
        2.Display
        3.Update
        4.Delete
        5.Exit
        Enter your choice : 2

        The contents of file are..
        Name = jagdish  EMP-ID = 2339   Salary = 12222


        Name = resham   EMP-ID = 2339   Salary = 40000


        Name = kalpesh  EMP-ID = 40000  Salary = 34000


        Do U want to Continue(y/n) : y
```

```
    ubntu@ubuntu: ~/resham/dsf

        1.Create
        2.Display
        3.Update
        4.Delete
        5.Exit
        Enter your choice : 4

        For Deletion :
        Enter the ID for searcching : 2339

        The rocord is Deleted

        Do U want to Continue(y/n) : y

        1.Create
        2.Display
        3.Update
        4.Delete
        5.Exit
        Enter your choice : 2

        The contents of file are..
        Name = resham   EMP-ID = 2339   Salary = 40000
```

```
    ubntu@ubuntu: ~/resham/dsf

        For Deletion :
        Enter the ID for searcching : 2339

        The rocord is Deleted

        Do U want to Continue(y/n) : y

        1.Create
        2.Display
        3.Update
        4.Delete
        5.Exit
        Enter your choice : 2

        The contents of file are..
        Name = resham   EMP-ID = 2339   Salary = 40000


        Name = kalpesh  EMP-ID = 40000  Salary = 34000


        Do U want to Continue(y/n) : n
ubntu@ubuntu:~/resham/dsf$
```