Problem :

Implementation of a direct access file -Insertion and deletion of a record from a direct access file

Code:

#include <iostream>

#include <fstream>

#include <string>

using namespace std;

int myHash(string x)

{

int n = 0,sum = 0;

for(int i=0;i<x.length();i++)

n += (int)x[i];

while(n>0)

{

sum += n % 1000;

n /= 1000;

}

int last = sum%10,first = 0;

int temp = sum/10;

while(temp>0)

{

first = temp;

temp=temp/10;

}

return first\*10+last ;

}

void directStore(int hash, string data)

{

string d,allData;

ifstream infile;

infile.open("dsa.txt");

while(getline(infile,d))

allData += d;

infile.close();

ofstream f;

f.open("dsa.txt");

if(allData.length()>(10\*hash))

{

string x = allData.substr(0,(10\*hash));

string y = allData.substr((10\*hash)+10);

allData = x+data+y;

f<<allData;

}

else

{

f<<allData;

f.seekp((10\*hash),ios::beg);

f<<data;

}

f.close();

}

int directSearch(string data)

{

int hash = myHash(data);

string d,allData;

ifstream infile;

infile.open("dsa.txt");

while(getline(infile,d))

allData += d;

infile.close();

if(10\*hash<=allData.length())

{

if(allData.substr((10\*hash),10) == data)

{

cout<<"The data "<<data<<" is present at hash address "<<hash<<endl;

return 1;

}

else

{

cout<<"The Data to BE DELETED is not present in the Direct Access File."<<endl;

return 0;

}

}

else

{

cout<<"The Data to BE DELETED is not present in the Direct Access File."<<endl;

return 0;

}

}

void directDelete(string data)

{

int hash = myHash(data);

string d,allData;

ifstream infile;

infile.open("dsa.txt");

while(getline(infile,d))

allData += d;

infile.close();

ofstream f;

f.open("dsa.txt");

if(allData.length()>(10\*hash))

{

string x = allData.substr(0,(10\*hash)-1);

string y = allData.substr((10\*hash)+10);

allData = x+" "+y;

f<<allData;

}

else

cout<<"The Data to BE DELETED is not present in the Direct Access File."<<endl;

f.close();

}

int main()

{

while(1)

{

int ch;

cout<<"Enter 1-Insert in Direct Access File | 2-Search | 3-Delete | 0-EXIT : "<<endl;

cin>>ch;

string x;

if(ch==1||ch==2||ch==3)

{

string arr[] = {"Inserted","Searched","Deleted"};

cout<<"Enter String Data to be "<<arr[ch-1]<<" : "<<endl;

cin.get();

getline(cin,x);

if(x.length()>=10)

x = x.substr(0,10);

else

{

while(x.length()<10)

x +=" ";

}

if(ch==1)

{

int hash = myHash(x);

directStore(hash,x);

}

else if(ch==2)

{

int y = directSearch(x);

}

else if(ch==3)

{

int y = directSearch(x);

if(y==1)

directDelete(x);

}

}

else if(ch==0)

{

cout<<"EXITING."<<endl;

break;

}

}

return 0;

}

OUTPUT:

Enter 1-Insert in Direct Access File | 2-Search | 3-Delete | 0-EXIT :

1

Enter String Data to be Inserted :

abin

Enter 1-Insert in Direct Access File | 2-Search | 3-Delete | 0-EXIT :

2

Enter String Data to be Searched :

abin

The data abin is present at hash address 62