#include<iostream> #include<string.h> using namespace std; class HashFunction

{

typedef struct hash

{

}hash;

hash h[10];

long key;

char name[10];

public: HashFunction();

void insert(); void display(); int find(long);

void Delete(long);

};

HashFunction::HashFunction()

{

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

{

h[i].key=-1; strcpy(h[i].name,"NULL");

}

}

void HashFunction::Delete(long k)

{

int index=find(k);

if(index==-1)

{

cout<<"\n\tKey Not Found";

}

else

{

h[index].key=-1; strcpy(h[index].name,"NULL");

cout<<"\n\tKey is Deleted";

}

}

int HashFunction::find(long k)

{

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

{

if(h[i].key==k)

{

cout<<"\n\t"<<h[i].key<<" is Found at "<<i<<" Location With Name "<<h[i].name; return i;

}

}

if(i==10)

{

return -1;

}

}

void HashFunction::display()

{

int i; cout<<"\n\t\tKey\t\tName"; for(i=0;i<10;i++)

{

cout<<"\n\th["<<i<<"]\t"<<h[i].key<<"\t\t"<<h[i].name;

}

}

void HashFunction::insert()

{

char ans,n[10],ntemp[10]; long k,temp;

int v,hi,cnt=0,flag=0,i;

do

{

if(cnt>=10)

{

cout<<"\n\tHash Table is FULL"; break;

}

cout<<"\n\tEnter a Telephone No: "; cin>>k;

cout<<"\n\tEnter a Client Name: "; cin>>n;

hi=k%10;// hash function if(h[hi].key==-1)

{

}

else

{

h[hi].key=k; strcpy(h[hi].name,n);

if(h[hi].key%10!=hi)

{

temp=h[hi].key; strcpy(ntemp,h[hi].name);

h[hi].key=k; strcpy(h[hi].name,n); for(i=hi+1;i<10;i++)

{

if(h[i].key==-1)

{

h[i].key=temp; strcpy(h[i].name,ntemp); flag=1;

break;

}

}

for(i=0;i<hi && flag==0;i++)

{

if(h[i].key==-1)

{

}

else

{

h[i].key=temp; strcpy(h[i].name,ntemp); break;

}

}

for(i=hi+1;i<10;i++)

{

if(h[i].key==-1)

{

h[i].key=k; strcpy(h[i].name,n); flag=1;

break;

}

}

for(i=0;i<hi && flag==0;i++)

{

if(h[i].key==-1)

{

h[i].key=k; strcpy(h[i].name,n); break;

}

}

}

}

flag=0; cnt++;

cout<<"\n\t. Do You Want to Insert More Key: y/n";

cin>>ans;

}while(ans=='y'||ans=='Y');

}

int main()

{

long k;

int ch,index; char ans;

HashFunction obj;

do

{

cout<<"\n\t\*\*\* Telephone (ADT) \*\*\*\*\*";

cout<<"\n\t1. Insert\n\t2. Display\n\t3. Find\n\t4. Delete\n\t5. Exit"; cout<<"\n\t. Enter Your Choice: ";

cin>>ch; switch(ch)

{

case 1: obj.insert(); break;

case 2: obj.display();

break;

case 3: cout<<"\n\tEnter a Key Which You Want to Search: "; cin>>k;

index=obj.find(k); if(index==-1)

{

cout<<"\n\tKey Not Found";

}

break;

case 4: cout<<"\n\tEnter a Key Which You Want to Delete: "; cin>>k;

obj.Delete(k); break;

case 5:

}

break;

cout<<"\n\t. Do You Want to Continue in Main Menu:y/n ";

cin>>ans;

}while(ans=='y'||ans=='Y');

}