//Assignment no 1

#include <iostream>

using namespace std;

class HashTable{

public:

int key;

int index;

};

class Hashing

{

private:

HashTable H[10];

public:

Hashing(){

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

{

H[i].key=-1;

H[i].index=i;

}

}

void display();

void insert(int p\_ch);

int LinearP(int position);

int QuadraticP(int position);

};

void Hashing::display()

{

cout<<"Hash Table is"<<endl;

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

{

cout<<H[i].key<<"\t\t\t\t\t"<<H[i].index<<endl;

}

}

void Hashing::insert(int p\_ch)

{

int pos;

int key1;

cout<<"Enter the Telephone number\n";

cin>>key1;

pos=key1%10;

if(H[pos].key==-1)

{

H[pos].key=key1;

}

else if(p\_ch==1){

int temp=LinearP(pos);

H[temp].key=key1;

}

else if(p\_ch==2){

int temp=QuadraticP(pos);

H[temp].key=key1;

}

}

int Hashing::LinearP(int position) {

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

int newPos = (position + i) % 10;

if (H[newPos].key == -1) {

return newPos;

}

}

return -1;

}

int Hashing::QuadraticP(int position) {

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

int newPos = (position + (i \* i)) % 10;

if (H[newPos].key == -1) {

return newPos;

}

}

return -1;

}

int main(){

Hashing obj;

int ch;

int p\_choice;

do{

cout<<"----MENU----\n";

cout<<"1. Insert\n";

cout<<"2. Display\n";

cout<<"3. Exit\n";

cout<<"Enter your choice\n";

cin>>ch;

if(ch==1){

cout<<"Enter the probing choice\n1. Linear Probing\n2. Quadratic Probing\n";

cin>>p\_choice;

}

else{

p\_choice=0;

}

switch(ch){

case 1:

{

obj.insert(p\_choice);

break;

}

case 2:

{

obj.display();

break;

}

case 3:

{

cout<<"End of program";

break;

}

default:

{

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

}

}

}while(ch!=3);

}

output:

gescoe@gescoe-OptiPlex-3010:~/Desktop/SE-A-55$ g++ Hashing.cpp

gescoe@gescoe-OptiPlex-3010:~/Desktop/SE-A-55$ ./a.out

----MENU----

1. Insert
2. Display
3. Exit

Enter your choice

1

Enter the probing choice

1. Linear Probing
2. Quadratic Probing

1

Enter the Telephone number

951878884

----MENU----

1. Insert
2. Display
3. Exit

Enter your choice

1

Enter the probing choice

1. Linear Probing
2. Quadratic Probing

2

Enter the Telephone number

976700110

----MENU----

1. Insert
2. Display
3. Exit

Enter your choice

2

Hash Table is

976700110

* 1
* 1
* 1

951878884

* 1
* 1
* 1
* 1
* 1

----MENU----

1. Insert
2. Display
3. Exit

Enter your choice

3

End of programgescoe@gescoe-OptiPlex-3010:~/Desktop/SE-A-55$