Practical-1(A-1)

Problem Statement:

Consider telephone book database of N clients. Make use of a hash table implementation to quickly look up client ‘s telephone number. Make use of two collision handling techniques and compare them using number of comparisons required to find a set of telephone numbers

Code:

```
#include<iostream>
using namespace std;
class hashing
{
   long int mobile,hash_table[10];
   public:
      hashing()
      {
         for(int i=0;i<10;i++)
         {
            hash_table[i]=-1;
         }
      }
      void linear_prob();
      void quadratic_prob();
      void display();
};
void hashing::linear_prob()
{
   int index;
   cout<<"Enter your mobile number:\n";
   cin>>mobile;
   index=mobile%10;
   if(hash_table[index]=-1)
   {
      hash_table[index]=mobile;
   }
   else
   {
      while(hash_table[index]!=-1)
      {
         cout<<"Testing index"<<index<<endl;
         if(index==9)
         {
```

```
            index=0;
          }
          else
          {
            index++;
          }
       }
       hash_table[index]=mobile;
    }
}
void hashing::quadratic_prob()
{
  int index,a;
  cout<<"enter your mobile number";
  cin>>mobile;
  index=mobile%10;
int j=1;
if(hash_table[index]==-1)
{
            hash_table[index]=mobile;
}
else
{
a=index%10;
while(j<10)
{
index=(a+(j*j)%10);
if(hash_table[index]==-1)
{
hash_table[index]=mobile;
break;
}
else
{
j++;
}
}
}
}
```

```
void hashing::display()
{
for(int i=0;i<10;i++)
{
cout<<i<<" "<<hash_table[i]<<endl;
}
}
int main()
{
hashing h;
int ch;
do
{
   cout<<"******MENU******"<<endl;
cout<<"1.LINEAR PROBING"<<endl;
cout<<"2.QUADRATIC PROBING"<<endl;
cout<<"3.DISPLAY"<<endl;
cout<<"4.EXIT"<<endl;
cout<<"Enter your choice:";
cin>>ch;
switch(ch)
{
case 1:h.linear_prob();
     break;
case 2:h.quadratic_prob();
     break;
case 3:h.display();
     break;
case 4: cout<<" Exiting Code";
      break;
}
}while(ch!=4);
return 0;
}
```

OUTPUT:

******MENU******
1.LINEAR PROBING

```
2.QUADRATIC PROBING
3.DISPLAY
4.EXIT
Enter your choice:1
Enter your mobile number:
9000033221
******MENU******
1.LINEAR PROBING
2.QUADRATIC PROBING
3.DISPLAY
4.EXIT
Enter your choice:2
enter your mobile number9000043211
******MENU******
1.LINEAR PROBING
2.QUADRATIC PROBING
3.DISPLAY
4.EXIT
Enter your choice:3
0 -1
1 9000033221
2 9000043211
3 -1
4 -1
5 -1
6 -1
7 -1
8 -1
9 -1
******MENU******
1.LINEAR PROBING
2.QUADRATIC PROBING
3.DISPLAY
4.EXIT
Enter your choice:4
```