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n=int(input("Enter the value of hashtable = "))

hashtable=[[],[],[],[],[],[],[],[],[],[]]

def linear_probining(val,phone):

    temp=[]

    temp.append(phone)

    while hashtable[val]!=[]:

        val=val+1

        if val>10:

            val=0

    hashtable[val].append(temp)

    return val

def seperate_chaining(val,phone):

    hashtable[val].append(phone)

def hash_fun(phone):

    return phone%10

def insert_value(phone):

    val=hash_fun(phone)

    if(hashtable[val]==[]):

        temp=[]

        temp.append(phone)

        hashtable.insert(val,temp)

    else:
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        value=int(input("\n Collision has occurred \n 1.Linear probing \t
2.Separate chaining"))

        if value==1:

            val=linear_probining(val,phone)

        if value==2:

            separate_chaining(val,phone)

        print("Inserted at hash value = "+str(val))

def display():

    for i in range (10):

        print(str(i)+"->"+str(hashtable[i]))

def search(phone):

    for i in range(10):

        for j in range(len(hashtable[i])):

            if hashtable[i][j]==phone:

                return i

for i in range(n):

    pno=int(input("Enter the phone number"))

    insert_value(pno)

print("\n Hashtable \n")

display()

s=int(input("Enter the number to be searched"))

print("Phone number found at position :",search(s))

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