

"""

NAME :- Mahesh Gaikwad

ROLL :- SA21

Consider the telephone book database of N clients. Make use of a hash table implementation to quickly look up a 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

```
""" n = int(input("Enter the number of records
```

```
: ")) hashTable = [[] for i in range(10)] def
```

```
linear_probing(val, name, phone) :
```

```
temp = [(name, phone)] while
```

```
hashTable[val] : val = (val + 1) % 10
```

```
hashTable[val] = temp display_hashTable()
```

```
def separate_chaining(val, name, phone) :
```

```
hashTable[val].append((name, phone))
```

```
display_hashTable() def
```

```
insert_value(name, phone) : val =
```

```
hashFunction(phone) if not hashTable[val]
```

```
:
```

```
hashTable[val] = [(name, phone)]
```

```
else :
```

```

print("\n***** Collision Occured *****") choice =
int(input('1.Linear Probing\n2.Separate Chaining\n')) if choice
== 1 :
linear_probing(val, name, phone)
else :
separate_chaining(val, name, phone)

```

```

def hashFunction(phone) :
return phone % 10 def
display_hashTable() : for
i in range(10) :
print(str(i) + "->" + str(hashTable[i]))

```

```

def search_number(phone) :
for i in range(10) :
for name, num in hashTable[i] :
if(num == phone) :
print(f'Found ! : {name}')
return print("Not found") for i
in range(n) :
name = input("Enter the name : ")
phone = int(input("Enter the phone number : "))

```

```

insert_value(name, phone)

```

```
print('\nHash Table\n') display_hashTable() num = int(input("Enter the
number of phone records do you want to search
: "))
for i in range(num) : phone = int(input("Enter the phone
number to be searched : ")) search_number(phone)
```

OUTPUT:-

Enter the number of records : 3

Enter the name : sneha

Enter the phone number : 9975250240

Enter the name : Avani

Enter the phone number : 9823561890

***** Collision Occurured *****

1.Linear Probing

2.Separate Chaining

1

0->[('sneha', 9975250240)]

1->[('Avani',9823561890)]

2->[]

3->[]

4->[]

5->[]

6->[]

7->[]

8->[]

9->[]

Enter the name : Ketki

Enter the phone number : 3455678901

***** Collision Occurured *****

1.Linear Probing

2.Separate Chaining

2

0->[('sneha', 9975250240)]

1->[('Avani', 9823561890), ('Ketki', 3455678901)]

2->[]

3->[]

4->[]

5->[]

6->[]

7->[]

8->[]

9->[]

Hash Table

0->[('sneha', 9975250240)]

1->[('Avani', 9823561890), ('Ketki', 3455678901)]

2->[]

3->[]

4->[]

5->[]

6->[]

7->[]

8->[]

9->[]

Enter the number of phone records do you want to search : 1

Enter the phone number to be searched : 9975250240