```
""" program to demonstrate hash program"""
hash_table = [ [] for _ in range(10)]
def insert(hash_table, key, value):
    hash_key = hash(key) % len(hash_table)
    key_exists = False
    bucket = hash_table[hash_key]
    for i, kv in enumerate(bucket):
        k, v = kv
        if key == k:
            key_exists = True
            break
    if key_exists:
        bucket[i] = ((key, value))
    else:
        bucket.append((key, value))

def search(hash_table, key):
           hash_key= hash(key) % len(hash_table)
           bucket = hash_table[hash_key]
           for i, kv in enumerate(bucket):
                   k, v = kv
                   if key == k:
                           return v

def delete(hash_table, key):
           hash_key= hash(key) % len(hash_table)
           key_exits = False
           bucket = hash_table[hash_key]
           for i, kv in enumerate(bucket):
                    k, v = kv
                    if key == k:
                              key_exists = True
                              break
           if key_exists:
                   del bucket[i]
                   print('key {} deleted'.format(key))
           else:
                   print('key {} not found'.format(key))

def display_hash(hash_table):
    for i in range(len(hash_table)):
        print(i, end = " ")

        for j in hash_table[i]:
            print("-->", end = " ")
            print(j, end = " ")

        print()

while True:
    print("----- Hash table Function-----")
    print("1.INSERT")
    print("2.SEARCH")
    print("3.DELETE")
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    print("4.DISPLAY")
    ch = int(input("Enter your choices:"))


    if ch==1:
        insert(hash_table, 10, 'Allahabad')
        insert(hash_table, 25, 'Mumbai')
        insert(hash_table, 20, 'Mathura')
        insert(hash_table, 9, 'Delhi')
        insert(hash_table, 31, 'Panjab')
        insert(hash_table, 21, 'Noida')
        print(hash_table)

    if ch==2:
        key =int(input("ENTER your values:"))
        print(search(hash_table, key))

    if ch == 3:
        key1 =int(input("ENTER your values:"))
        print(delete(hash_table, key1))

    if ch== 4:
        display_hash(hash_table)


output:
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
4.DISPLAY
Enter your choices:4
0
1
2
3
4
5
6
7
8
9
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
4.DISPLAY
Enter your choices:2
ENTER your values:20
None
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
```

```
4.DISPLAY
Enter your choices:1
[[(10, 'Allahabad'), (20, 'Mathura')], [(31, 'Panjab'), (21, 'Noida')],
[], [], [], [(25, 'Mumbai')], [], [], [], [(9, 'Delhi')]]
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
4.DISPLAY
Enter your choices:20
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
4.DISPLAY
Enter your choices:3
ENTER your values:20
key 20 deleted
None
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
4.DISPLAY
Enter your choices:2
ENTER your values:20
None
----- Hash table Function-----
1.INSERT
2.SEARCH
3.DELETE
4.DISPLAY
Enter your choices:4
0 --> (10, 'Allahabad')
1 --> (31, 'Panjab') --> (21, 'Noida')
2
3
4
5 --> (25, 'Mumbai')
6
7
8
9 --> (9, 'Delhi')
```