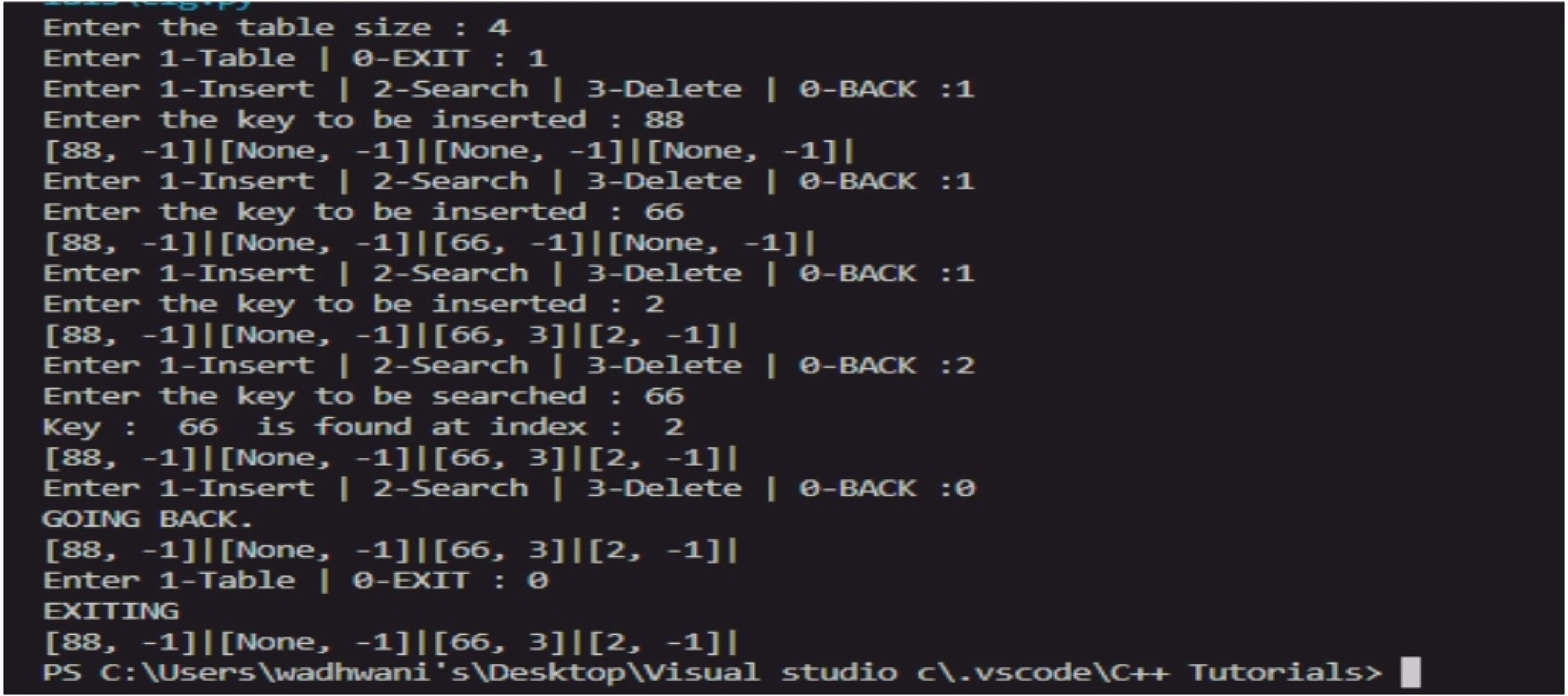
Experiment A2

```
table = []
b,totl = 0,0
bucket = {}
def create():
    global b
    b = int(input("Enter the table size : "))
    for i in range(b):
        table.append([None,-1])
        bucket[i] = -1
def printtable():
 global b
 for i in range(b):
  print(table[i],end="|")
 print("")
def chaininsert(key):
    global b,totl
    hash = key%b
    if (table[hash][0]==None):
        table[hash][0] = key
        bucket[key%b] = hash
    else:
        flag = 0
        for i in range(0,b):
            hash = (key+i)%b
            if (table[hash][0]==None):
                totl += 1
                flag = 1
                if bucket[key%b]!=1:
                    table[bucket[key%b]][1] = hash
                bucket[key%b] = hash
                table[hash][0] = key
                break
        if(flag==0):
            print("Key : ",key," not inserted - table full .")
def chainsearch(key):
    global b
    hash = key%b
    if (table[hash][0]==key):
        print("Key : ",key," is found at index : ",hash)
    else:
        flag,i,chain = 0,0,table[hash][1]
        while(table[hash][0]!=None and table[hash][0]%b != key%b):
            hash = (key+i)%b
            chain = table[hash][1]
            if (table[hash][0]==key):
                print("Key : ",key," is found at index : ",hash)
                chain = -1
                flag = 1
                break
            i += 1
        while(chain!=-1):
            if (table[chain][0]==key):
                print("Key : ",key," is found at index : ",chain)
                flag = 1
                break
            chain = table[chain][1]
        if(flag==0):
            print("Key : ",key," not found.")
def chaindelete(key):
    global b
    hash = key%b
    if (table[hash][0]==key):
        table[hash][0],table[hash][1] = None,-1
        print("Key : ",key," was deleted from index : ",hash)
    else:
        flag,i,pchain,chain = 0,0,hash,table[hash][1]
        while(table[hash][0]!=None and table[hash][0]%b != key%b):
            hash = (key+i)%b
            pchain = chain
            chain = table[hash][1]
            if (table[hash][0]==key):
                table[pchain][1] = table[chain][1]
                table[chain][0],table[chain][1]=None,-1
                print("Key : ",key," was deleted from index : ",chain)            i += 1
        while(chain!=-1):
            if (table[chain][0]==key):
                table[pchain][1] = table[chain][1]
                table[chain][0],table[chain][1]=None,-1
                print("Key : ",key," was deleted from index : ",chain)
                flag = 1
                break
            pchain = chain
            chain = table[chain][1]
        if(flag==0):
            print("Key : ",key," not found.")
create()
while(1):
    ch = int(input("Enter 1-Table | 0-EXIT : "))
    if ch == 1 :
        while(1):
```

```
        ch2 = int(input("Enter 1-Insert | 2-Search | 3-Delete | 0-BACK :"))
        if ch2==1:
            key = int(input("Enter the key to be inserted : "))
            chaininsert(key)
            printtable()
        elif ch2==2:
            key = int(input("Enter the key to be searched : "))
            chainsearch(key)
            printtable()
        elif ch2==3:
            key = int(input("Enter the key to be searched : "))
            chaindelete(key)
            printtable()
        elif ch2==0:
            print("GOING BACK.")
            printtable()
            break
elif ch == 0:
    print("EXITING")
    printtable()
    break
else:
    printtable()
```



```
Enter the table size : 4
Enter 1-Table | 0-EXIT : 1
Enter 1-Insert | 2-Search | 3-Delete | 0-BACK :1
Enter the key to be inserted : 88
[88, -1]|[None, -1]|[None, -1]|[None, -1]|
Enter 1-Insert | 2-Search | 3-Delete | 0-BACK :1
Enter the key to be inserted : 66
[88, -1]|[None, -1]|[66, -1]|[None, -1]|
Enter 1-Insert | 2-Search | 3-Delete | 0-BACK :1
Enter the key to be inserted : 2
[88, -1]|[None, -1]|[66, 3]|[2, -1]|
Enter 1-Insert | 2-Search | 3-Delete | 0-BACK :2
Enter the key to be searched : 66
Key :  66  is found at index :  2
[88, -1]|[None, -1]|[66, 3]|[2, -1]|
Enter 1-Insert | 2-Search | 3-Delete | 0-BACK :0
GOING BACK.
[88, -1]|[None, -1]|[66, 3]|[2, -1]|
Enter 1-Table | 0-EXIT : 0
EXITING
[88, -1]|[None, -1]|[66, 3]|[2, -1]|
PS C:\Users\wadhwani's\Desktop\Visual studio c\.vscode\C++ Tutorials>
```