

## ASSIGNMENT 1

```
table_size = 10
```

```
hash_table = []
```

```
def hash_function(key):
```

```
    return key % table_size
```

```
def insert(hash_table, key):
```

```
    hash_index = hash_function(key)
```

```
    hash_table[hash_index].append(key)
```

```
def display(hash_table):
```

```
    print("INDEX\tVALUE")
```

```
    for index, value in enumerate(hash_table):
```

```
        print(index, value, sep='\t\t')
```

```
def search(hash_table, key):
```

```
    hash_index = hash_function(key)
```

```
    bucket = hash_table[hash_index]
```

```
    if key in bucket:
```

```
        return hash_index
```

```
    return False
```

```
def delete(hash_table, key):
```

```
    hash_index = hash_function(key)
```

```
    return hash_table[hash_index].remove(key)
```

```
# Initialize HashTable with empty lists i.e. [[], [], []]
```

```
for i in range(table_size):
```

```
    hash_table.append([])
```

```
insert(hash_table, 123)
```

```
insert(hash_table, 456)
```

```
insert(hash_table, 789)
```

```
insert(hash_table, 786)
```

```
insert(hash_table, 999)
```

```
insert(hash_table, 232)
```

```
insert(hash_table, 459)
```

```
insert(hash_table, 2)
```

```
display(hash_table)
```

```
res = search(hash_table, 232)
```

```
print(f"Search Result for 232: {res}")
```

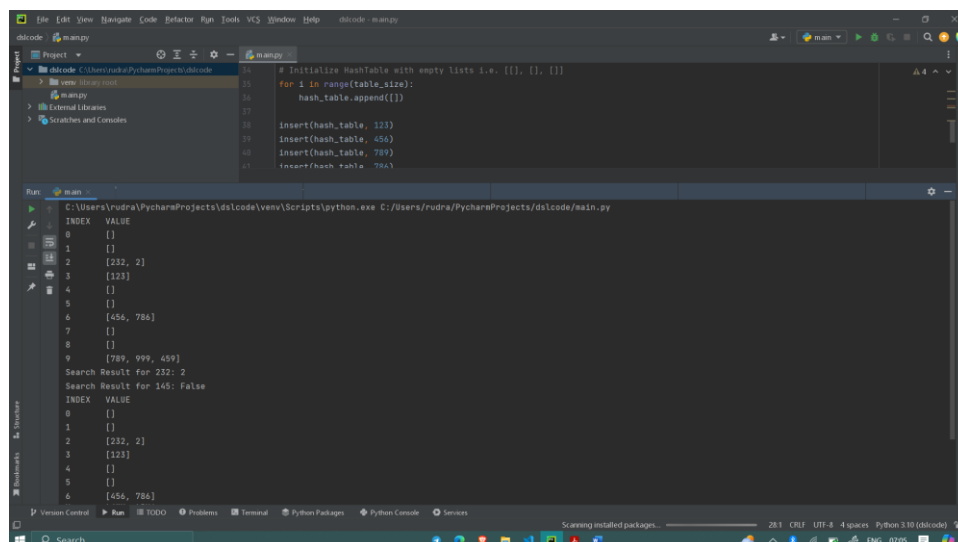
```
res = search(hash_table, 145)
```

```
print(f"Search Result for 145: {res}")
```

```
delete(hash_table, 999)
```

```
display(hash_table)
```

OUTPUT :



```
1 # Initialize HashTable with empty lists i.e. [], [], []
2 for i in range(table_size):
3     hash_table.append([])
4
5 insert(hash_table, 123)
6 insert(hash_table, 456)
7 insert(hash_table, 789)
8 insert(hash_table, 786)
9
10 display(hash_table)
11
12 res = search(hash_table, 232)
13 print(f"Search Result for 232: {res}")
14
15 res = search(hash_table, 145)
16 print(f"Search Result for 145: {res}")
17
18 delete(hash_table, 999)
19
20 display(hash_table)
```

Run: C:\Users\rudra\PycharmProjects\ds\code\venv\Scripts\python.exe C:/Users/rudra/PycharmProjects/ds/code/main.py

INDEX	VALUE
0	[]
1	[]
2	[232, 2]
3	[123]
4	[]
5	[]
6	[456, 786]
7	[]
8	[]
9	[789, 999, 459]

Search Result for 232: 2  
Search Result for 145: False

INDEX	VALUE
0	[]
1	[]
2	[232, 2]
3	[123]
4	[]
5	[]
6	[456, 786]