

## Question 1

- 1.This code is saved in q1.py
- 2.This program creates a class which contain a method to recursively counts the number of nodes in a singly linked list.
- 3.Execute as followings:

```
19 def test():
20     L=SinglyLinkedList(Node(7))
21     L.insert(5)
22     L.insert(8)
23     L.insert(3)
24     print(L.recursive_count(L.head))
25
26 test()
```

OUTPUT    DEBUG CONSOLE    TERMINAL

✓ TERMINAL

```
am\Assignment\CSC1001\Assignment4\q1.py'
4
PS C:\Users\lonla\OneDrive - CUHK-Shenzhen\桌面\program>
```

## Question 2

- 1.This code is saved in q2.py
- 2.This program creates a class which contain a method to sort over a singly linked list by quick sort.
- 3.Execute as followings:

```
40 def test():
41     L=SinglyLinkedList(Node(7))
42     L.insert(5)
43     L.insert(8)
44     L.insert(3)
45     L.quick_sort(L.head)
46     L.print()
47
48 test()
```

OUTPUT    DEBUG CONSOLE    TERMINAL

✓ TERMINAL

```
am\Assignment\CSC1001\Assignment4\q1.py'
4
PS C:\Users\lonla\OneDrive - CUHK-Shenzhen\桌面\program>
'c:\Users\lonla\.vscode\extensions\ms-python.python-2021
C1001\Assignment4\q2.py'
3
5
7
8
```

### Question 3

- 1.This code is saved in q3.py
- 2.This program solves the Tower of Hanoi problem by stack.
- 3.Execute as followings:

```
Please enter the number of disks:3
A --> C
A --> B
B --> A
A --> B
B --> A
B --> C
C --> B
```