**Course: Algorithm**  
**Prof. Prem Nair**  
**Student: Binh Van Tran**  
**ID: 986648**  
**Homework: Lab 8**

I used the source code for singly linked list here: <https://gist.github.com/es20641/1208340/06d598126d53b048058bc243cbc4e4dd7db9a23a>

1. *Implement a recursive algorithm to count the number of nodes.*

**public** **int** count() {

**return** **this**.recursiveCount(*head*, 0);

}

**private** **int** recursiveCount(Node node, **int** count) {

**if**(node == **null**) {

**return** count;

}

**return** **this**.recursiveCount(node.next, count + 1);

}

1. *Implement a recursive algorithm to reverse the list*

**public** **void** reverse() {

recursiveReverse(**null**, *head*);

}

**private** **void** recursiveReverse(Node prev, Node current) {

**if**(current == **null**) {

**return**;

}

Node next = current.next;

current.next = prev;

prev = current;

**if**(next == **null**) {

*head* = current;

}

recursiveReverse(prev, next);

}