

15-121 Fall 2019 Quiz 6

Up to 25 minutes. No calculators, no notes, no books, no computers. Show your work!

1. Consider the following program that creates a linked list. You may assume that the `ListNode` class exists and was defined as in class.

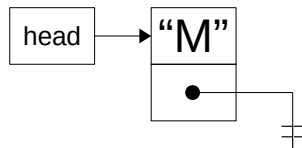
```

1 public class Quiz6CT1 {
2     public static void main(String[] args) {
3         ListNode<String> head = null;
4         ListNode<String> tmp = null;
5
6         head = new ListNode<String>("M");
7         tmp = new ListNode<String>("B");
8         head.next = tmp;
9         tmp = new ListNode<String>("T");
10        tmp.next = head.next;
11        head.next = tmp;
12        tmp = new ListNode<String>("X");
13        tmp.next = head.next.next.next;
14        head.next.next.next = tmp;
15    }
16 }

```

Draw the state of the linked list after the execution of each specified line of code. (The linked list is defined as starting at `head`.) The first one is drawn for you.

- (a) After Line 6



- (b) (3 points) After Line 8

- (c) (3 points) After Line 10

- (d) (3 points) After Line 11

- (e) (3 points) After Line 14

2. Consider the following program that creates a linked list. You may assume that the `ListNode` class exists and was defined as in class.

```
1 public class Quiz6CT2 {
2     public static void main(String[] args) {
3         ListNode<Integer> head = null;
4         ListNode<Integer> tmp = null;
5
6         head = new ListNode<Integer>(10);
7         head.next = new ListNode<Integer>(20);
8         tmp = new ListNode<Integer>(30);
9         tmp.next = head.next;
10        head.next = tmp;
11        tmp = head;
12        head = new ListNode<Integer>(40);
13        head.next = tmp;
14        tmp = head.next.next.next;
15        head.next.next.next = null;
16        tmp.next = head;
17        head = tmp;
18    }
19 }
```

Draw the state of the linked list after the execution of each specified line of code. (The linked list is defined as starting at `head`.)

(a) (2 points) After Line 10

(b) (2 points) After Line 17

3. (4 points) **Short Answer:** What is the difference between using `super()` and using `super`?