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Data Structures

Spring 2020

Homework Assignment 1.3.18, 1.3.22, 1.3.23, 1.3.31

(1.3.18) Suppose x is a linked-list node and not the last node on the list. What is the effect of the following code fragment?

```
x.next = x.next.next;
```

Solution: The pointer of the node x will point to the node following the node that it is currently pointing to. This effectively removes any reference from $x.next$ and removes that node from the linked-list.

(1.3.22) Suppose that x is a linked list Node. What does the following code fragment do?

```
t.next = x.next;  
x.next = t;
```

Solution: The pointer from the node t points to what x is currently pointing to and then the pointer from x is reassigned to t . This inserts t inbetween x and the following node.

(1.3.23) Why does the following code fragment not do the same thing as in the previous question?

```
x.next = t;  
t.next = x.next;
```

Solution: This code fragment assigns x 's pointer to t and then assigns t 's pointer to where x 's pointer is now pointing (pointing to t). You cannot reassign x 's pointer first or else you will lose the reference the node following x .