

# CS2100 Lists

Note Title

10/21/2011

## Announcements

- Vector HW - up today

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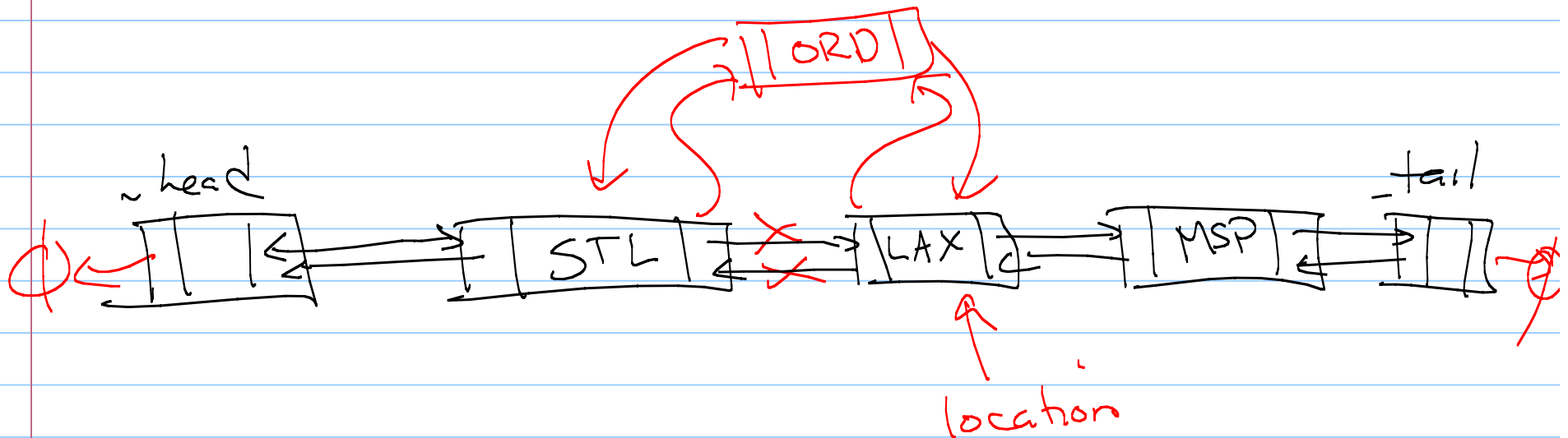
Lists:

Motivation: insert in vectors is slow!

(Running time?)  $O(n)$

Idea: If I know where the element should go, inserting should be easy.

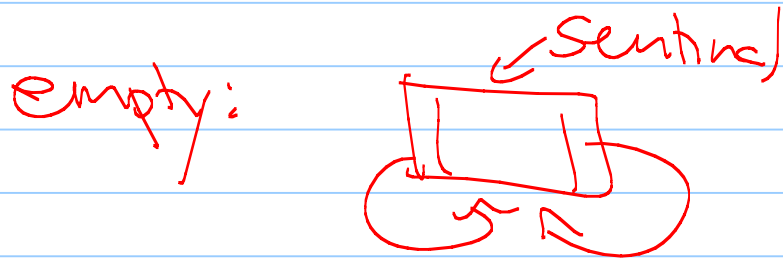
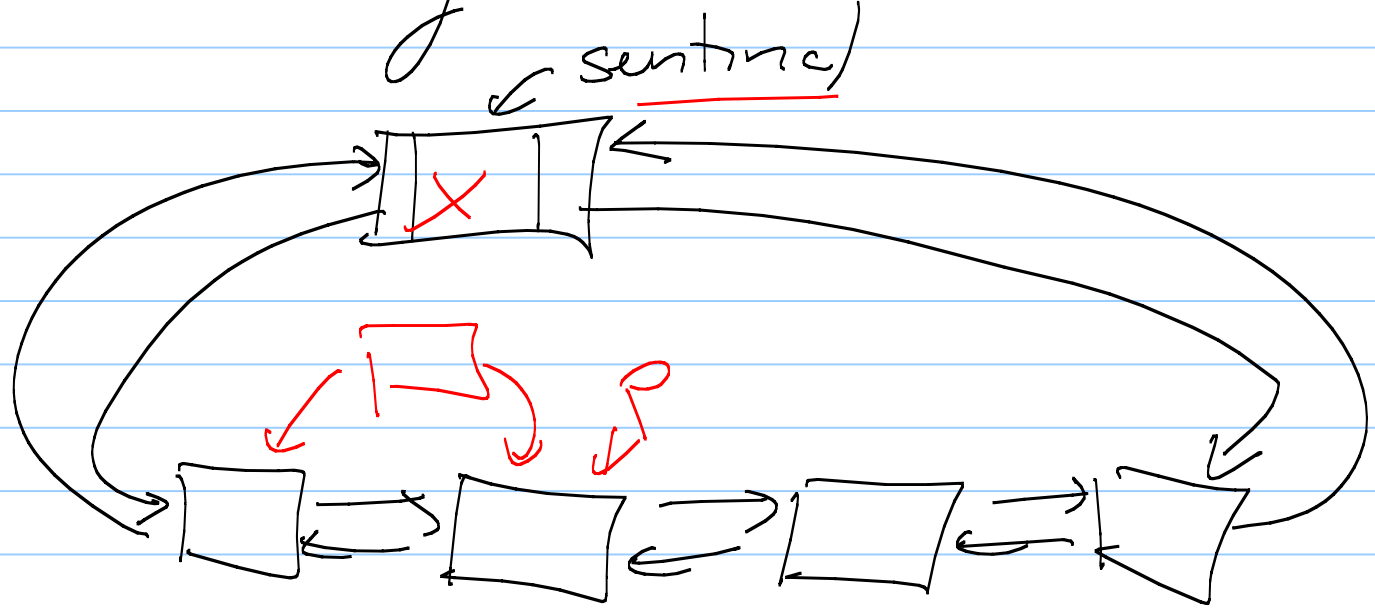
# Doubly Linked Lists



insert (ORD) - where?

1 node allocation  
+ 4 pointer updates

Better: Circularly linked lists



Problem: Pointers!

What do we need in order to know where we should insert?

- need pointer to a Node  
private!

Solution: Iterator

class whose private data is simply one pointer.

hide all possibility of seg fault

## Iterators

An iterator will give the user a "pointer", but with a heavily controlled structure.  
(So they can't touch nodes directly.)

Compromise: Functionality versus info. encapsulation

goal: protect data & user

STL functions

Usage:

```
List<int> mylist;
```

```
List<int>::iterator it;
```



Code:

2 internal classes

✓

