

Linked Lists

2-6-2002

Opening Discussion

- What did we talk about last class?
- What is a list? How do you typically use lists in regular life?
- Designs in general were not specific enough.
- Minute essay comments.
 - $\text{Size} * 2$ in `resize`.
 - Full queue is `front == back + 1`.

Finish Queue Code

- Real quick, let's go edit the code for the queue so that the `resize` function will actually do the right thing for a queue.
- First though, can you tell me why the version for the stack doesn't work for the queue?

Lists

- A list on a computer is very much like the lists you use in regular life. They are a way of storing information, typically of a given type and they allow certain functionality.
- Typically you can add things and remove things. If order matters then inserting things might be helpful as well.

Linked Lists

- A linked list is a method of creating lists that is very dynamic, and quite good for some applications. They are characterized by the fact that each element of the list knows only about element(s) next to it.
- No single entity knows about the whole list, but any part of the list can be reached starting at the right element.

Singly Linked Lists

- In a singly linked list the elements of the list know only about the next element in the list.
- With a dynamic singly linked list we implement this by having each element of the list keep a "next" pointer that points to something of it's own type.
- It is customary to have a list class that has a pointer to the head of the list and a node class that has the next pointer.

Code

- Now we will write the code to implement a dynamic singly linked list. If time allows we will make it so that the list can either be sorted or unsorted.

Minute Essay

- Given the nature of a linked list, what operations are they well suited for? What are the things you don't want to be doing often with a linked list?
- Assignment #1 is due on Friday. If you haven't started to write the code for it yet then I would highly recommend that you do so without delay.
