# CIS 110 Recitation Linked Lists continued

August 1st



#### Agenda + Logistics

- Today:
  - Interfaces (continued)
  - Linked Lists (continued)
- Any questions?
  - Homework 4
  - Lecture material
- Reminders:
  - HW4 due Wednesday at midnight (tomorrow)
  - Final Exam Thursday

## **Doubly Linked Lists vs. Singly Linked Lists**

HEAD Single Linked List 5 + 7 + 3 + 4 + NULL



## Doubly Linked Lists vs. Singly Linked Lists

- Singly Linked Lists:
  - Only move in one direction
  - Must move through entire list to access a Node at the end
- Doubly Linked Lists:
  - Moves in both directions
  - Can start from either end of list to access elements

### List Interface

void add(double d): appends specified element to the end of this list

void add(int index, double d): inserts the specified element at the specified position in the list

void clear(): removes all of the elements from the list

boolean contains (double d): returns true if this list contains d

double get(int index): returns the element at the specified position in the list

int indexOf(double d): returns the index of the first occurrence of the specified element in the list or -1 if the list does not contain the element

boolean isEmpty(): returns true if this list contains no elements

double remove(int index): removes the element at the specified position in the list

boolean remove(double d): removes the first occurrence of the specified element from the list

double set (int index, double d): replaces the element at the specified location

int size(): returns the number of elements in the list