

CS367 Announcements

Wednesday, June 19, 2013

- H1 Posted
- P1 Posted
- Calendar added to website
- IntroToLinuxAndCSL link

Last Time

- Review ADT, Interfaces, Object class
- autoboxing/casting
- using Java generics for generality
- the ListADT
- using Lists

Today

- ListADT review
- implementing the List ADT using arrays
- Lists and the Java API
- implementing the List ADT contains method
- Iterators
 - what are they
 - using

The List ADT Review

Conceptual picture

Operations

- void add(E item)
- void add(int pos, E item)
- boolean contains(E item)
- int size()
- boolean isEmpty()
- E get(int pos)
- E remove(int pos)

List ADT as a Java Interface

(See code and javadoc)

Implementing the List ADT using SimpleArrayList (option 1)

```
public class SimpleArrayList implements ListADT<Object> {  
  
    private Object[] items; // the items in the List  
    private int numItems;   // the # of items in the List  
  
    public SimpleArrayList() {  
  
    }  
  
    /*** required ListADT methods ***  
  
    public void add(Object item) { ... }  
  
    public void add(int pos, Object item) { ... }  
  
    public Object remove(int pos) { ... }  
  
    public Object get (int pos) { ... }  
  
    public boolean contains (Object item) { ... }  
  
    public int size() { ... }  
  
    public boolean isEmpty() { ... }  
  
}
```

Implementing `contains` for `SimpleArrayList`

Complete the method so that it returns `true` iff the given `item` is in the list:

```
public boolean contains(Object item) {
```

Iterators

What are they?

Conceptual picture

red blue yellow orange green purple brown

Iterator<E> interface in java.util.* says what iterators will do:

- boolean hasNext()
- E next()
- void remove() // ‘optional’

Iterable<E> interface in java.lang.* says what classes providing iterators do:

- Iterator<T> iterator();

Every Java class that implements the Iterable interface must have an iterator() method.

Using Iterators

Suppose `myList` is an `ArrayList<String>` containing Strings.

Write a code fragment that uses an iterator to print each item in `myList`

```
// first write the code to get an iterator from myList
```

```
// now use it to print each item in myList
```