Today

- Beginning of primitive arrays

Short Questions?

Project 5

Questions?

ArrayLists

ArrayList class that we have already seen:

- Ordered list of objects
- List is indexed from 0 .. (Size-1)
- Can access each individual object (through the get() method)
- Can change the object reference (through the set() method)
- Automatically handles reorganization of the list as items are added or removed

Arrays

The ArrayList class is implemented using Java Arrays (as are many other classes)

Java Arrays:

- Store lists of primitive data types (including references)
- All items in the list are of the same type
- Fixed in size (you declare this ahead of time)
- All items occupy a contiguous region of memory (makes for efficient access)

Arrays

```
// Allocate an array of size 7:
int[] intList = new int[7];

// Set element values
intList[4] = 9;
intList[5] = 11;

// Accessing the elements
System.out.println(intList[5] + intList[4]);
```

Arrays

```
// Allocate an array of size 7:
int[] intList = new int[7];

// Set element values
intList[7] = 11;              // Throws an exception

// Can ask an array how many elements it has
System.out.println(intList.length);
```

Arrays

```
// Allocate an array and initialize its contents:
int[] intList = {5,6,8,21,3,42};

// How many are in the list?
System.out.println(intList.length);
```

Array Pitfalls

- Arrays cannot be resized
    - If you want to resize, then you must create a new Array and copy the contents of the old array over to it
- Indexes start at zero
- Using indexes that do not exist: IndexOutOfBoundsException

Wrap Up

Due:

- Project 5: next Tuesday
- HW 7:

Next time:

- Arrays continued