

# CS350: Data Structures Class Notes

*Class 4: Monday, September 8, 2008*

## **Over Complex Number Class:**

Be sure to demo and document your code. We discussed problems with printing signs within complex numbers.

## **Boolean Class:**

### **Over Homework:**

Your answer should look something like this.

### **Boolean ADT**

**Elements:** True, False

| <b>Notation</b> | <b>Meaning</b> |
|-----------------|----------------|
| p, q, r         | Boolean values |

### **Operations:**

$\text{and}(p,q) \rightarrow r$

$\text{or}(p,q) \rightarrow r$

$\text{not}(p) \rightarrow q$

$\text{cmp}(p,q) \rightarrow r$

...

We can add to our ADT a set of Axiom that should be very familiar:

$\text{and}(\text{True},\text{True}) \rightarrow \text{True}$

$\text{and}(\text{True},\text{False}) \rightarrow \text{False}$

...

## **Recursion:**

Definition: A function that calls itself

Three Laws:

1. Must have non-recursive base case
2. Test for base case must come before recursive call
3. Recursive call must "move toward" base case

Issues: Efficiency, expressiveness, multiple base cases

## **Homework:**

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