

Recitation Guide for January 14th, 2008

I. Housekeeping

- a. New TAs: [Daniel Fuller](#), [Sean Hussey](#) and [Tyler Meehan](#).
- b. Homework 1 due Friday January 18th.
- c. No recitation Monday January 21st. Additional office hours will probably be held. Stay tuned to the coweb and t-square.

II. Basic Java

a. Common Shorthand

- i. `x = x + 1;`
 1. `x++;`
 2. `x +=1;`
- ii. `x = x - 1;`
 1. `x--;`
 2. `x -=1;`

b. Conditionals

i. AND

1. General form

a. `((<expression 1>) && (<expression 2>))`

2. All components of the expressions must be `true` for the entire expression to evaluate to `true`, else `false`.

ii. OR

1. General form

a. `((<expression 1>) || (<expression 2>))`

2. Only one component of the expression must be `true` for the entire expression to evaluate to `true`. Only `false` when all components of the expression evaluate to `false`.

c. Iterating in Java

i. See

[Spring 2008 Iterating in Java MATLAB and Python to Java Tutorial.pdf](#)

d. Arrays

- i. `length` is an instance variable that is the length, capacity, of the array.

ii. General form for declaration of empty array

1. `<type>[]<variable-name> = <type>[<capacity>;`

iii. Specific examples

1. `//array of integers with a length of 5`
`int[] iArray = new int[5];`
2. `//array of doubles with a length of 10`

```
double[]dArray = new double[10];
```

3. //array of Strings with a length of 3
String[] sArray = new String[3];

iv. General form for declaration of filled array

1. <type>[]<variable-name> = {<variable or value 1>, <variable or value 2>, ..., <variable or value n>};

v. Specific examples

1. String[] sArray2 = {"Variable1", "Variable2", "Variable3"} ;
2. boolean[] bArray = {true, false, false, true, true};

vi. Indexing an array

1. 0-indexed (meaning the indices start at 0 not 1 like MATLAB).
2. General form

a. <variable-name>[<index>]

3. Specific Examples

- a. sArray2[2];
- b. bArray[1];

4. IndexOutOfBoundsException

- a. Occurs when trying to access an index that is less than 0 and greater than or equal to the length of the array.

vii. Iterating through an array

1.

```
int[] iArray2 = {0, 1, 2, 3, 4, 5, 6};
for (int I = 0; I < iArray2.length; i++){
    System.out.println("Index " + i
        + " has value " + iArray2[i]);
}
```

e. Modifiers

i. Visibility modifiers

1. `public` – default visibility; viewable within any class.
2. `private` – viewable only within the class it is declared in.
3. `protected` – viewable within the class it is declared in and within any child classes

ii. `final` – cannot be changed after initial declaration.

iii. `static` – accessible without declaring an instance of the class.

f. Methods

i. Return types

1. `void` – does not return anything
2. `Non-void` – returns an `Object` or primitive

ii. main method

1. Method that is called when the class is run. If there is no main method when a class is run, it will generate an error.
2. The interactions pane is basically like a giant main method.
3. Code form: `public static void main(String[] args)`

III. General Inheritance

a. Extending

i. General form

1. `<visibility modifier> class <subclass> extends <superclass>`

ii. Specific example

1. `public class Picture extends SimplePicture`
Picture is the subclass and SimplePicture is the superclass

b. Child class will inherit everything with `public` and `protected` visibility, but not `private`.

c. Overriding

i. Happens when a child class contains the exact method signature (name, plus the number and the type of its parameters) as its parent.

ii. If within the child class and the overridden super method (not a constructor) is needed, use the following:

1. General form

- a. `super.<method-name>(<parameter1>, <parameter2>...);`

2. Specific example

- a. `super.eat();` //assuming eat() is a void method

IV. Homework 1

- a. Description: <http://coweb.cc.gatech.edu/cs1316/905#hw1>
- b. Questions: <http://coweb.cc.gatech.edu/cs1316/987>
- c. Remember do not include `FileChooser.setMediaPath()`.
- d. Turn the `.java` file not the `.java~` or the `.class` file
- e. Questions?

V. Installation Help Continued