Lecture 04
UA CSI201
Introduction to Computer Science
Albany way...2013
• Turtle graphics and programming
  – Great intro to **sequential processing: you see the effects of different orders**.
  – Turtle (animal) only moves forward or turns, sketches its path with a pen

• Object oriented programming: a modern way to think
  – inside the computer there are real, concrete, heavy, kind of alive “objects” with potential behaviors
  – The code YOU write will command an object to actually act out a behavior.

• Proj 01: You wrote a sequence of commands to tell a Turtle object to turn or go forward.
An Albany way.

Every computer program or App (piece of software) instructs a computer to do something more or less useful and/or fun.

People like (or hate!) to talk or think about this or that App does.

Georgia Tech way—tediously, repeatedly by hand type in commands and watch the computer do them

> World w = new World()
> Turtle t = new Turtle( w );
> t.forward( 100 );
> t.turn( 90 );

When you're done, its GONE.

Albany Create an App right away! Change it to make it better and better and better.

When you're done, you can show it off again and again, and maybe make it even better tomorrow.
An Albany way.

Georgia Tech way—tediously, repeatedly by hand type in commands and watch the computer do them.

```java
World w = new World();
Turtle t = new Turtle( w );
t.forward( 100 );
t.turn( 90 );
```

When you're done, its GONE.

DON'T Type those carets!

End each Java line with a ; except for blocks —they end with }
• Object oriented programming: modern way to think
  – inside the computer there are real, concrete, heavy, kind of alive “objects” with potential behaviors
  – The code YOU write will command an object to actually act out a behavior.

• 1960's “procedures” are recipes whose instructions apply to anything and everything in the computer, like cookbook recipes can involve any and all ingredients and kitchen gadgets.

• A modern “method” in addition to being instructions, is attached and restricted to only operate on (data in) a heavy, solid-Turtle-like object. Proj 01: You wrote a sequence of commands to tell a Turtle object to turn or go forward.
Another Albany way

forward(), turn(), moveTo(), etc are behaviors that Profs. Guzdial and Erikson programmed their Turtles to possibly perform.

We do not edit G&E's Turtle.java file, but we program an enhanced, more talented Turtle whose talents extend the capabilities G&E programmed into their Turtles.

We say that our enhanced Turtle is an ArtisticTurtle. We write and save the code that instructs an ArtisticTurtle to do its more artistic things in the ArtisticTurtle.java file.
Find examples of the details for extending an already programmed class in the DrawWithMethodsApp.java and ArtisticTurtle.java files from Lab01 and Proj02.