CSI201
Intro to CS
Lecture 05
Intro Programming @ Albany

- YOU actually write instructions for a computer to follow (after learning how).
- Syntax: nested lists of statements
- instructions to do what? calculations with numbers.
- Variables: Electronic versions of actual scratch paper sheets
- Pick, Position, Parametrize
- Fancy (fish-drawing method) uses top, fin, inside “subprocedures” today called methods
Instructions

this.forward( 100 );
this.turn( 90 );
this.forward( 35 );

List of 3 statements. They instruct this ArtisticTurtle to draw a hook.
Instructions within nestings
(not angry birds)

```java
public class ArtisticTurtle extends Turtle {
    public void hook( int size ) {
        this.forward( 100 );
        this.turn( 90 );
        this.forward( 35 );
    }
}
```
Computer Instructions
They instruct
(who? A human or robotic computer)
to write, read, do math on, and copy numeric data
(ultimately bits: binary (0 or 1 only) digits)
on, from and between variables
The programs you will write are like the orders (pages of instructions) to those heroic WW II women to compute artillary firing tables **ON PAPER**

**VARIABLE:** 20th-21st century electronic version of one single box on a paper worksheet or accounting ledger...like the 3 boxes on your GCD worksheet.

spreadsheets: Make variables visible to people untrained in computer programming (like CEOs)
Pick, Position, Parametrize

**Pick** from a CHEAT SHEET (language manual or textbook like Gaddis; and API (Application Programming Interface) documentation like for G&E's Book Classes.

**Position**: The order matters What makes this Turtle go right?

(A) this.forward(100); (B) this.turn(90);
this.turn(90); this.forward(100);

**Parametrize**: The 100 makes it go a distance of 100 pixels.
Let's develop an ArtisticTurtle method to draw a pentagonal spiral
The Turtle must turn an amount of turn (degrees) so that


is 5 times \( ? \)

is 360 degrees.

So the amount of angle for each turn must be 360/5 or 72 degrees.