Outline for January 11

Reading: Wentworth et al., §3.1, 3.4.1

Assignments: Homework 1, due on January 18 at 11:55pm

1. chaos program, incomplete version [chaos.py]
   a. Comments
   b. Function `input()` gets input as a string from user
   c. Function `float()` converts data to a floating point number
   d. Assignment to variable; evaluate right hand side first
   e. For loop generally
      i. Built-in `range()` function
      ii. Index variable `i` initialized to 0
      iii. Expression using multiplication, subtraction, and variables
      iv. Printing a number
   f. Behavior with initial values of 0.25 and 0.26
   g. Lack of error checking: what happens if I enter −0.01?

2. Turtle graphics
   a. What turtle is; import turtle

3. Drawing a figure: a box with a hat [tbox.py]
   a. Set up the window to draw in: `Screen()`
   b. Create the turtle: `Turtle`
   c. Cursor for drawing
     d. Move cursor forward: `forward(), backward()`
   e. Turn cursor: `left(), right()`
   f. Wait for the window to close: `mainloop()`

4. Titles, background, and such [tfancybox.py]
   a. Window
      i. Color of the window background: `background()`
      ii. Title of the window: `title`
   b. Turtle, more properly called “pen”
      i. Shape of the turtle: `shape()`
      ii. Speed of the drawing: `speed()`
      iii. Color of the drawn line: `color()`
      iv. Thickness of the line (pixels): `pensize()`
      v. Hide the turtle: `hideturtle()`

5. Plotting points and graphing
   a. Drawing lines: `penup(), pendown()`
   b. Move turtle: `setpos()`
   c. Write text: `write()`
   d. Draw a dot at the current position: `dot()` [tchaosdots.py]
   e. Draw a line from the current position to another: `goto()` [tchaosline.py]