Turtle Graphics in Python

By Deborah R. Fowler
KEY CONCEPTS

- variables
- truth statements
- looping
- functions
- I/O
- lists
- classes/objects
- OOP
Why I like Turtle Graphics:

Programming with visual output

Uses a Tkinter window (standard GUI – Graphical User Interface)
http://www.deborahrfowler.com/PythonResources/PythonTurtle.html

https://runestone.academy/runestone/books/published/thinkcspy/index.html

or

http://www.openbookproject.net/thinkcs/python/english2e/

https://docs.python.org/3.6/library/turtle.html
Imagine a turtle with three attributes:

location
orientation
a pen (color, width/up/down)
Works exactly as is in 3.6 as well
in-class exercise:

Draw one of your initials using the turtle library
Looping – a way to repeat code

In python

for i in range(0,2):
    print("hello world")
What would our square code look like?

Works exactly as is in 3.6 as well
Other code

What would happen if we left the last line off?

Works exactly as is in 3.6 as well
Draw more than one square?

We can nest loops
in-class exercise:

Given:

circle(radius) – draws a circle of size radius
fillcolor(colorname) – sets the color attribute for fill
begin_fill() and end_fill() – similar to pu() and pd()

Create a snowman – have fun, be creative

Save your file and put it in the dropbox in a “Dailies” Folder
in-class exercise:

List is here:

https://docs.python.org/3.6/library/turtle.html
Functions

A group of code statements

Why?

Allows us to organize and build modularly
Allows easy repetition of code
import turtle

def drawSquare():
    for i in range(0, 4):
        turtle.forward(100)
        turtle.left(90)

drawSquare()
import turtle

def drawSquare(size):
    for i in range(0, 4):
        turtle.forward(size)
        turtle.left(90)

drawSquare(100)
Calling with variable arguments

```python
import turtle

def drawSquare(size):
    for i in range(0,4):
        turtle.forward(size)
        turtle.left(90)

mysize = 100
drawSquare(mysize)
```
homework:

Create a better snowman and read chapters 1-6 of the online resource:

https://runestone.academy/runestone/books/published/thinkcspy/index.html

You may start on the quilting exercise (E1) but it is not expected

Instructions on the link on the course notes