1. Initialization
   1. Identi home position
      1. (x,y,orientation)
   2. Pen size
   3. Up/down
2. Face-drawing
   1. Algorithms (series of steps/ instructions/directions to accomp. Task
   2. Each subdrawing will start and end at the home position
      1. INVARIANCE concept (leaves you where you started)
         1. Pros:
            1. You know where you are when each step completes
            2. Easy to add new features
            3. Easy to remove features
            4. Easy to alter features
            5. Can reorder everything, can draw each feature of face in whatever order with no repurcussions.
         2. Cons:
            1. Reduced performance

CODE FOR TURTLE CLASS

“””

Docstrings begin/end with 3 double quotes

Docstring are special strings that are wrapped in 3 double quotes we’ll use them at the beginning of files to say name/date/assignment, and also just inside of each function to explain the purpose etc of the function.

File: lecture1.py

Author: Jonathan O’Brien

Date: 8/26/13

“””

Import turtle # this gives us access to turtle functions

# comments begin with pound symbol

# turn the turtle north and go…..

# default pos. of turtle is center of canvas, facing east, pen down, defaults going counterclockwise around from the point

Turtle.left(90)

Turtle.forward(50)

Turtle.right(90)

Turtle.circle(30)

NEXT CODE

From turtle import \*

# \* means import everything, to just use one function from the module, just switch the \* with the function wanted

Lf(90)

Fd(50)

Rt(90)

Circle(30)

# this could cause problems when using many modules/libraries with the same/similar functions, so the first one is better at that situation.

* Think about reusing funcitons to save code and time.

Def lollypop():

“””draw lollypop. Assume facing east with pen down at start and completion “””

Lt(90)

Fd(50)

Rt(90)

Circle(30)

(lt(90)

Bk(50)

Rt(90)

Lollypop()

Up()

fd(50)

Down()

Lollypop()

Input(“please press enter to end program”)

Turtle.bye()

Str = “””defines variable with a string”””

The bottom part unindented, up lifts pen so nothing is drawn, fd moves it so there is space,down puts pen down

# indentation is crucial, tells what lines are part of the functions, (loops, cond. Statements, etc)

Def tells of a function

(): later allows for input values

Call fx() by retyping name next to “def”

We want to draw some balloons

Center of canvas, facing east