CMSC 143: Introduction to Object-Oriented Programming with Robots

Lab 6: Etch-A-Sketch
Due October 12, 2009

Submit a copy of your python program (cmsc143_lab6_LASTNAME_FIRSTNAME.py) on moodle. Your program should have your name, email, and the date at the top of the file as a comment.

You are creating an etch-a-sketch program. I've provided you with a working program (etch-a-sketch 1.0), but you have to add a few features to create version 2.0. Your program should let the user provide a rough sketch, and then by selecting a button on the gamepad, your program should redraw the sketch in an inventive manner in a new window. The random module might be useful, and don't forget to add color!.

You'll need to complete:

1. A function `drawCircle(sketch, win)` that uses circles to redraw the sketch.

2. A function `drawLines(sketch, win)` that uses lines to redraw the sketch.

3. A function `drawPolygon(sketch, win)` that uses rectangles to redraw the sketch.

4. A function `drawPoint(sketch, win)` that uses points to redraw the sketch.

5. Draw a circle to indicate the current drawing cursor.

6. Button #6 should prevent drawing and only move the cursor.

7. Undo button – the last point is erased (`undraw()`) and the cursor is returned to the previous location.

Learning Objectives

∘ Work with graphics.   ∘ Create objects.   ∘ Use lists.   ∘ Interface design.

```
from myro import *
import random

width = 500
height = 500

win = GraphWin("JoyDraw", width, height)

cursor = Point(win.getWidth()/2.0, win.getHeight()/2.0)
cursor.draw(win)

sketch = []
keepGoing = True

while keepGoing:

    status = getGamepadNow()
    dx,dy  = status["axis"]
    buttons = status["button"]

    if abs(dx) > 0.01 or abs(dy) > 0.01:
        cursor.move(dx, dy)
        point = cursor.clone()
        point.draw(win)
        sketch.append(point)

    if buttons[0]:
        w = GraphWin("Lines", width, height)
        drawLines(sketch, w)

    if buttons[1]:
        w = GraphWin("Polygon", width, height)
        drawPolygon(sketch, w)

    if buttons[2]:
        w = GraphWin("Points", width, height)
        drawPoints(sketch, w)

    if buttons[3]:
        w = GraphWin("Circles", width, height)
        drawCircles(sketch, w)

    if buttons[5]:
        keepGoing = False

    wait(.001)
```