Visual Output in Processing

Demo 1

We will draw some lines and shapes to the screen using Processing with Python.

Solution

```
# CMPT 140 - Visual Output in Processing
# Topic: Drawing Lines and Shapes
# DEMO


# set up canvas size to 500x500 px
size(500,500)

# draws a downwards sloping line from (0,0) to (150,150)
line(0,0,150,150)

# draws an ellipse at (250,250)
ellipse(250,250,100,50)
# draws same-size ellipse at (500,250), slightly on border
# notice some of it is hidden!
ellipse(500,250,100,50)

# draws rectangle at (250,350)
rect(250,350,200,100)
# draws thinner rectangle a little to left at (150,350)
# notice the overlap!
rect(150,350,200,50)
```

This code can be found in: `cmpt140-ch03-py/cmpt140_ch03_draw_demo/cmpt140_ch03_draw_demo.pyde`.

Exercise 1

Write Processing code to draw the following shapes using **only** the commands **line**, **ellipse** and **size**:

(a) Triangle

(b) Circle

(c) Hexagon

All the shapes in the solution were drawn in clockwise order where applicable for consistency, starting with either the top-most and/or left-most point in the shape.

Solution

```
# CMPT 140 - Visual Output in Processing
# Topic: Drawings Shapes Using Lines


# set screen size so we can see all the shapes at once
size(500,500)

# Part (a)
line(250,50,300,150)
line(300,150,200,150)
line(200,150,250,50)

# Part (b)
ellipse(250,250,100,100)

# Part (c)
line(200,400,225,350)
line(225,350,275,350)
line(275,350,300,400)
line(300,400,275,450)
line(275,450,225,450)
line(225,450,200,400)
```

This code can be found in: `cmpt140-ch03-py/cmpt140_ch03_drawing_lines/cmpt140_ch03_drawing_lines.pyde`.

Blindfolded Rectangle Drawing

Rectangle Drawing

Tell your friend the coordinate of the top-left corner. Tell them the width. Tell them the height.

Exercise 2

Describe **three other ways** that you could use to tell your friend how to draw the rectangle that you want.

Answer: The solutions for this question vary, but as long as the inputs can perfectly replicate the desired rectangle size and location on the graph paper, it should be considered valid. The following are some examples (note, not an exhaustive list) of valid solutions:

Specify the rectangle's centre location, width, and height

Specify the rectangle's four corner locations

Specify the rectangle's top-left and bottom-right corner locations

Specify the rectangle's top-left corner location, height, and height-to-width ratio