

SAMS

Programming A/B

Week 6 Lecture –Simple Graphics

Odds & Ends

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Outline for Today

- Questions about the HW/upcoming Quiz!
 - HINT – test your functions!
 - Submit to autolab to get error feedback!
- Simple graphics with the Tkinter module
- Life after SAMS

Graphics with Tkinter

- Tkinter is the Python interface to the Tk Graphical User Interface (GUI), a set of *widgets* that can be used to create a graphical interface.
 - (And it was created by CMU alum John Ousterhout)
- We will use the canvas widget to draw some simple graphics; documentation for the canvas widget can be found here:
 - <http://effbot.org/tkinterbook/canvas.htm>

The canvas widget

- First you need to create an empty canvas:

```
from tkinter import *
```

```
root = Tk()
```

```
canvas = Canvas(root, width=500, height=300)
```

```
canvas.pack()
```

```
# your drawing code goes here
```

```
root.mainloop()
```

```
# this blocks, so close the window when finished!
```

Drawing with Tkinter

- The basic idea is
 - `canvas.create_graphic(coordinates, options)`
 - E.g., `canvas.create_line(x1, y1, x2, y2, options)`
- Shapes require a *bounding box*:
 - Two x,y coordinate pairs
 - Upper-left corner, lower-right corner
 - (0,0) is where in the window?

Functions to draw shapes

- The functions to draw shapes that we will use:
 - `canvas.create_line(coordinates, options)`
 - `canvas.create_oval(bounding-box, options)`
 - `canvas.create_polygon(coordinates, options)`
 - `canvas.create_rectangle(bounding-box, options)`
 - `canvas.create_arc(bounding-box, options)`
 - `canvas.create_image(position, option)`
 - `canvas.create_text(position, option)`
- Let's do some drawing...

Life after SAMS...

- When I was young... 😊
- What I have learned over time and know now...