Intro to Python

Day 6   07/17/14
Last Time

Control flows (if/else, while, for).

You (hopefully) had no problems installing Loopy and have now created a couple iPython notebooks.
Today

Exercise 38, then...

Some matplotlib examples and a realistic use case for iPython notebooks.
Plot \( \sin(x) \) from 0 to 5

```python
import numpy as np
import matplotlib.pyplot as plt

x = np.arange(0, 5, 0.1)
y = np.sin(x)
plt.plot(x, y)
plt.show()
```
Pie graphs

```python
import matplotlib.pyplot as plt

# The slices will be ordered and plotted counter-clockwise.
lables = ['Frogs', 'Hogs', 'Dogs', 'Logs']
sizes = [15, 30, 45, 10]
colors = ['yellowgreen', 'gold', 'lightskyblue', 'lightcoral']
explode = (0, 0.1, 0, 0) # only "explode" the 2nd slice (i.e. 'Hogs')

plt.pie(sizes, explode=explode, labels=labels, colors=colors,
        autopct='%.1f%%', startangle=90)

# Set aspect ratio to be equal so that pie is drawn as a circle.
plt.axis('equal')
plt.show()
```
More realistic example...

...in the convenient form of an iPython notebook.
More examples at matplotlib.org
Homework

Write a script that does the following:

- reads a file as a command line argument
  - (http://pastebin.com/raw.php?i=V5DZZWSc)
- creates a list from the input
- compute the average and standard deviation of the data
- produces a histogram plot of the data
- include the average and standard deviation on the plot

Depending on your implementation, it should look something like this...
When you’re done...

Send me your file and your output image.

I’ll look at your source code and will offer suggestions to everyone on Tuesday.