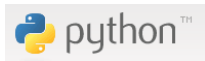# CompSci 6
Introduction to Computer Science

September 1, 2011

Prof. Rodger

Announcements

- Read for next time Chap. 2
- Reading Quiz on Blackboard
  - Due before class next time
- Assignment 1 out – due Sept 5! (not Python)
- Labs start today!
  - Finish installing software for course
  - Problem solving

Word Cloud from last time

action afraid afternoon blue bread bungee chip chocolate coding comedy computer course dog drama eagle early ethic evening forward games green heights humor jumping laptop learning lion looking mac meat morning music night noon pc playing pop programming rock science sense snakes social spiders sympathy things thoughtful unanswered vanilla work

How do we build a world cloud?

Focus on Simpler Problems

- How many words in a file?
  - What is a file?
  - What is a word?
  - How do we count the words
- How many unique words are in a file?
  - How is this problem different?

Python Code to solve this

```
def countWords(filename):
    file = open(filename)
    str = file.read()
    words = str.split()
    unique = set(words)
    print "filename: ", filename
    print "total # words = ",len(words)
    print "unique # words = ",len(unique)
countWords('romeo.txt')
```

OUTPUT:

```
filename:  romeo.txt
total # words =  25788
unique # words =  6394
```

Questions?

Our Programming Environment

- Install 5 items

- Why Java? – not using
- Eclipse – platform for development
- Python – programming language
- Pydev – Python IDE for Eclipse
- Ambient – turnin/snarf files to/from Duke

Eclipse - Two ways to run

- Write program and store in file
  - Create a PyDev project – a folder for programs
  - Create a PyDev module for each program (file)
  - Run in console
- Run interactively
  - Open PyDev console
  - Execute each line as typed
  - Code not saved

- Now write hello world and countwords

Starting with Python

- Variable
  - Name of a storage location – holds a value
  - = to assign a value to a variable
- Type
  - Different types of data
  - A variable can stores data of a certain type
  - int, float, str
- operators in Python for numbers
  - Arithmetic: + - * / % **
- Built-in functions: pow, abs, round, int, float

```
example:  pow(2,3) + round (1.6)
```

Variables, Types, Expressions?

a = 5

b = 4

c = "fred"

print c

print a + b * 3

print (a + b) * 3

print a / b

print a / (b * 1.0)

Write your own Function

- Format:

  def functionName(parameters):

      block

- Example:

```
def sum(a, b):
         return a+b
```

- Call function

```
sum(7, 4)
sum(2, num)
```

Classwork 2:

- Write Python programs for Laundry, Time and Theatre