

CompSci 6

Introduction to Computer Science

September 1, 2011



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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
```

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