CompSci 6
Introduction to Computer Science

September 6, 2011

Prof. Rodger

Announcements

- Read for next time Chap 3
- Reading Quiz (RQ 2) on Blackboard
  - Due before class next time
- Lab 2 starts Thursday

Python – Programming Concepts

- Names vs abstractions
  - What is http://152.3.140.1
  - What is http://www.amazon.com
- Types are important
  - What is foo.pdf, foo.mp4, foo.jpg, foo.wav
  - Do the file extensions guarantee file type?
- Python

```
first = "Susan"
x = 6
y = 3.4
```


Review(modified) – Names/Types

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

What are names and their types?

Questions?

Function – define vs call

- def functionName(parameters):
  block
- ```
  def sum(a, b):
      return a+b
  ```
- Call function
  ```
  sum(7, 4)
  sum("a", "cat")
  ```
- Advantages
  - Repeat code, call multiple times
  - Flexible, call with different arguments

Strings

- Sequence of characters in quotes
  ```
  "I" 'Love' '''Python'''
  ```
- String operators: concatenation (+), repeat(*)
- Precedence?
  ```
  "a" + "b" "c" * 3
  ```
- Format output - %f %d %s
  ```
  count = 3.0
  print "There were %d winners" % count
  ```


User Input

- Request input using raw_input()
  - Input is a string
    ```
    value = raw_input()
    ```
  - If want a number, must convert
    ```
    int(raw_input())
    float(raw_input())
    ```
- Encourage you to experiment with commands

Example

```
>>> ttemp = raw_input("temp?=")

>>> type(temp)

>>> temp * 3

>>> temp = int(temp)
>>> temp * 3
```
```

Problem Solving

- Given a problem
  - Write an algorithm first
  - Then convert to Python code
- Algorithm
  - Description in words of how to solve the problem
  - Think, What do you need? File, function, input?
  - Try to be precise

Classwork 3:

- Write programs for time and theater