Function Practice

CS303E: Elements of Computers
and Programming
June 25, 2012

- reuse, maintainability
- variable scope
- parameters

Function Variables: Scope

- A variable's *scope* is that part of the program where it may be accessed:
  – After its definition (initialization)
- *Local* variables are those that are created inside a function
  – All the variables we have created so far have been local to `main()`
- A local variable's scope is the function where it was created
  – Cannot be accessed by another function

Exercise

Write an `area` function that takes two arguments, `length` and `width`, and calculates the area of a rectangle with the specified dimensions. Then write a main function that prompts the user for the dimensions of 10 rectangles, and calls the `area` function to print the `area` for each.

Handout

iClicker Question

```
def main():
    x=32
    y=45
    addThem(x,y)
    #Point A

def addThem(a,b)
    print a+b
```

At point A, which variable is not in scope?

A. x

B. a

C. all variables are in scope

D. no variables are in scope

Group Exercise

Write a program that quizzes the user on addition until the user enters `done`. Your program should generate two random numbers between 1 and 1,000 and print them to the screen (like this: `a + b = `) and then allow the user to enter an answer. The program should use a function to:

- -prompt for and capture the answer
- -report whether the answer is right or wrong
- -if it is wrong, give the correct answer

You'll need: `random.randInt(1,1000)`

iClicker Question

```
def main():
    sum=0
    for i in range(3):
        sum=sum+i
        raiseIt(i,i)
    print sum

def raiseIt(base, power):
    print base**power,
```

What is the expected output?

A. 0 1 4 0

B. 0 1 4 5

C. 1 4 27 6

D. 1 4 27 32

Reminders

- Exam is Friday
- Review Wednesday
  - Come prepared to ask questions (or send me email!)
  - Sample Exam posted today (hopefully)
- Assignment 3 due Saturday
  - But doing it before the exam will help you!