Intro to programming

Day 5

Functions

The syntax for a function is

def name(parameters):

      statements

Functions are the second compound statement we have looked at

Compound statements

1. Have a header line starts with a keyword and ends in a colon

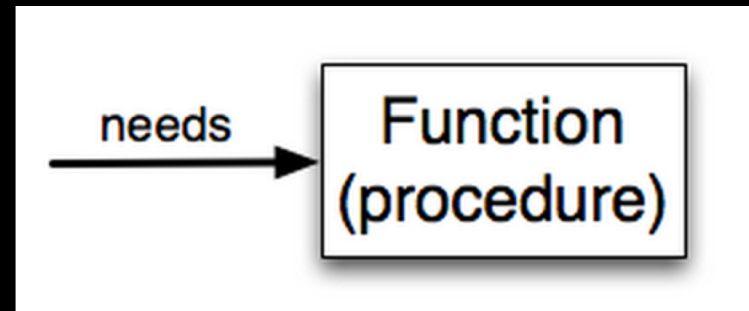2. A body consisting of one or more statements

(remember 4 spaces from the side of the page! Python only sees lines as "attached" if they are indented underneath the header

Functions

The parameter list of a function is known as the formal parameters. The function will not run without these items pasted into it.

What a user passes to a function are known as arguments or actual parameters

Example:functionFor.py

Docstrings

- Easy ways to document your own functions
- To use: the first thing after the header function is a string that must be triple quoted
- To retrieve this information use the REPL or (interactive interpreter) and enter the expression <function_name>.__doc__
- You can retrieve this information at run time unlike comments
- Use this feature for the key documentation for your code

(more on this later)

Functions

Function call or function invocation

    this is how you make a function run.

    drawTurtle(myTurt, 100)

Once you define a function you can call it over and over

Example: forTess.py

Maths

- Or coffee pots that make you coffee
- In python you can get the absolute value of a number. For example you can get the absolute value of -5, which is 5: math.fabs(-5)

- There's also an entire math module: import math

- To raise a number by a power: math.pow(2,3)
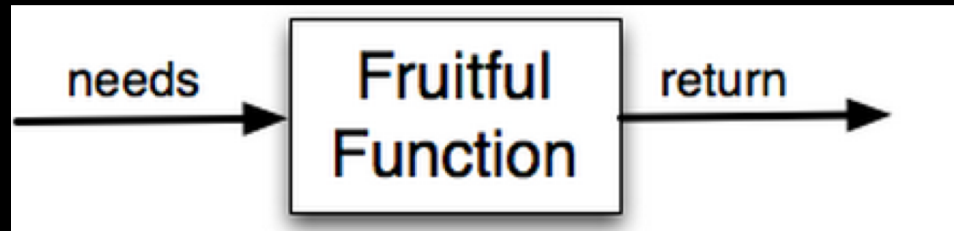- max(3,4,2,4,22)

Gives you the largest number in the list

Example maths.py

Functions that return values

- Fruitful function = returns a value

- Non-fruitful function = returns no value

Example: squaredNum.py

Return

- The keyword return marks a value to be returned from the function

- Return ends the function, it will not execute code written after it.

- It returns a temporary variable you can assign to a variable in your code after the function is called

- All python functions without a specific return will actually return type none

Example: moreReturns.py

Homework

- Draw a grid of boxes. Each box must be 10 pixels from the last

- Note this is a super challenge. Only the clever will succeed.

  (f you can't do it, that's ok to but I want you to try and think about the logical structure and give it a good college go. As long as you try, there's no bad grade here)

- We will cover how to do this in the class Monday but the power is already in your hands, if you can figure out how to use it

Hint – break the problem into smaller and smaller steps to come up with the solution. Think line by line…. ☺