CIS 122

Fully Functioning

Homework 0 Revisited

- Almost everyone submitted
  - If you didn't submit, let me know
  - I don't get notified when someone drops this class
  - If you don't submit homework, I'll assume the worst
- Very good for the most part
- A few bugs...
  - Better now than later
  - Get them out of our systems

Homework 0 Revisited

- Submit your code, not the shell
  - Python lets you save both (gah!)
  - I can't run your shell session
  - Make sure you can run whatever you submit

Homework 0 Revisited

- Break up comments
  - IDLE lets you type very long strings
  - But your screen is only so long...

```
# This comment is so long
# I broke it into two lines
```

- Write your name at the top of your files
  - I provide the header, just fill it in

```
# CIS 122 Assignment 1
# Due July 8, 2011
# Name:
# Partner: (if applicable)
```

String Things

- String Indexing
  - s[i]
  - Return the character in string s at position i
  - Start counting from 0

```
>>> "STRING"[2]
'R'
```

- You can index with negative numbers too
  - s[-i]
  - Return the ith character from the right
  - Start counting from -1

```
>>> "STRING"[-2]
'N'
```

String Things

- String slicing
  - s[i:j]
  - Return a subset of characters in s
  - Starting at character i,
  - Up to (but not including) character j

```
>>> "STRING"[1:4]
'TRI'
```

- If you leave off an index, defaults to beginning / end
  - s[i :] - all characters from character i onward
  - s[: i] - all characters up to (but not including) character i
  - s[:] - all characters

String Things

- String slicing with skips
  - s[i:j:k]
  - Start at character i
  - Count up by k...
  - Stop before character j

```
>>> "ABCDEFGH"[1:6:2]
'BDF'
```

- You can skip backwards too!

```
>>> "ABCDEFGH"[6:1:-2]
'GEC'
```

String Quiz

```
s1 = "STRINGS"
s2 = "SLICE"
s3 = "SPLIT"
s4 = s1 + s2[ : : -1] + s3[ : : -1]
s5 = s4[2 : : 5]
s6 = s2[3 : ]
s7 = s6 + s1[-1]
message = s7[ : : -1] + s5
```

```
s1 → 'STRINGS'
s2 → 'SLICE'
s3 → 'SPLIT'
s4 → 'STRINGSECILSTILPS'
s5 → 'RET'
s6 → 'CE'
s7 → 'CES'
message → 'SECRET'
```

What's the secret message?

Writing functions

- Python has many built-in functions
  - But what if it doesn't have the one you're looking for?
- Write your own!

Anatomy of a Function

```
def plusOne(myNum):
    """Adds one to myNum"""

    myLargerNum = myNum + 1
    return myLargerNum
```

Anatomy of a Function

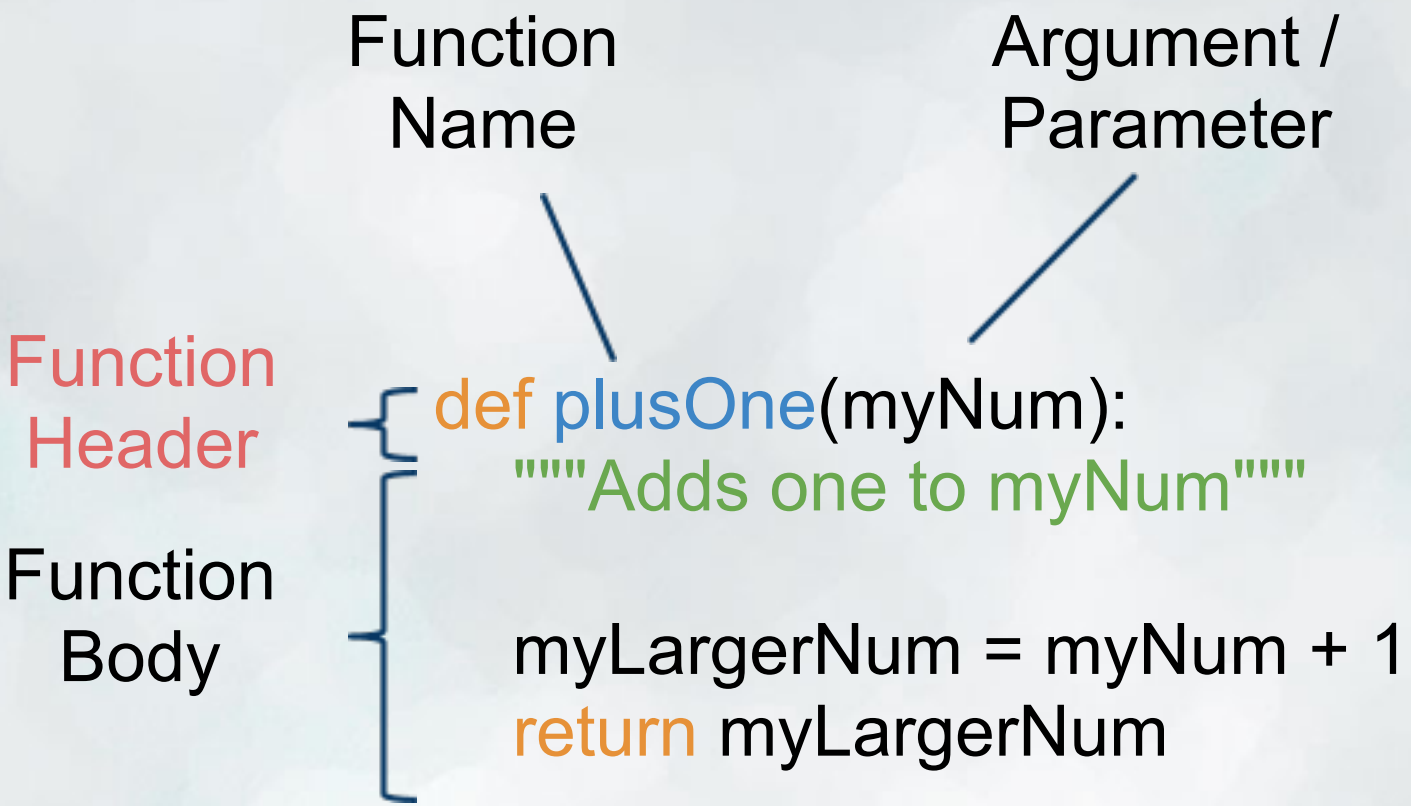
Function Header

Function Body

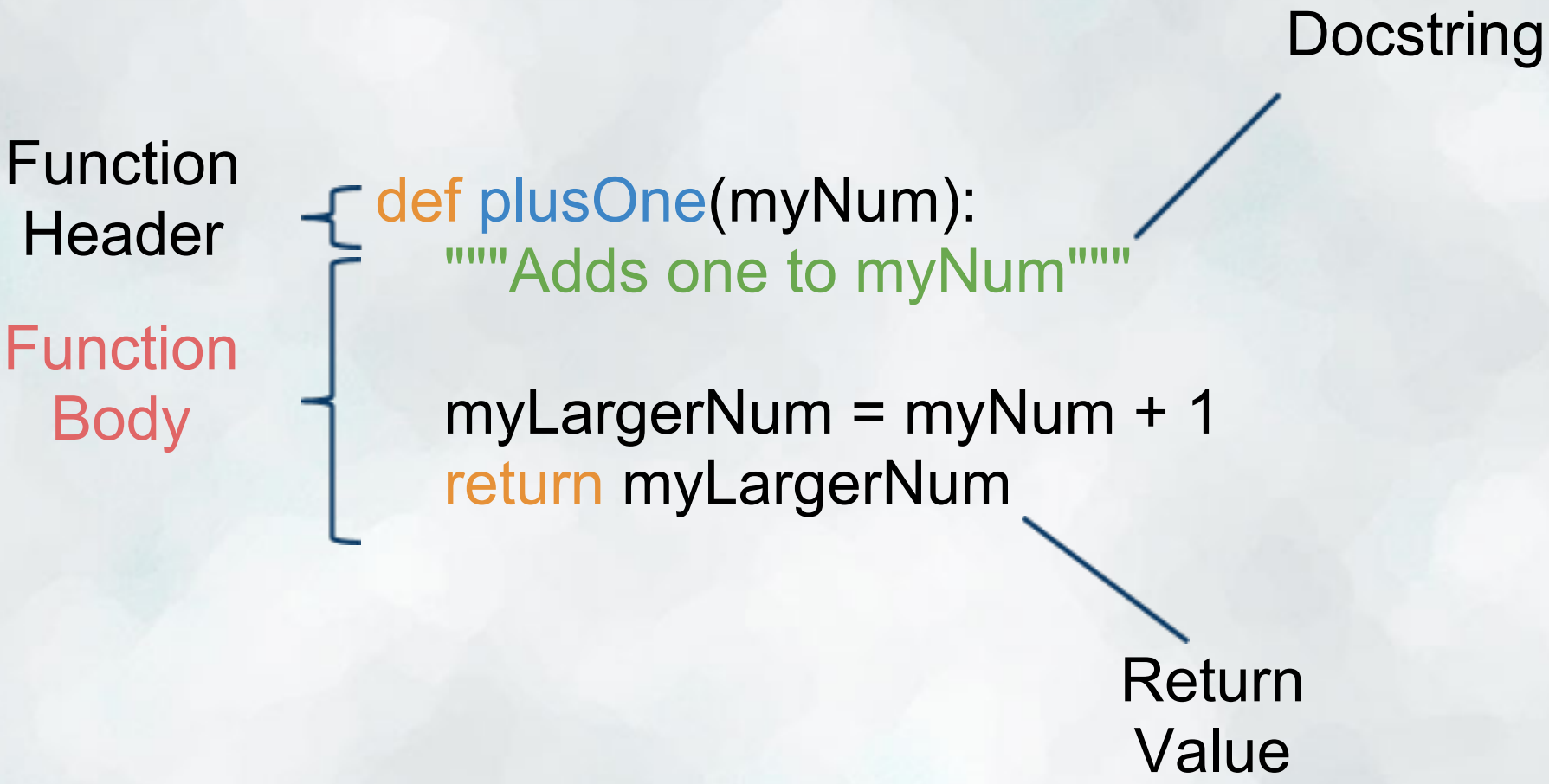
```
def plusOne(myNum):
    """Adds one to myNum"""

    myLargerNum = myNum + 1
    return myLargerNum
```

Anatomy of a Function



Anatomy of a Function



Breaking it Down

- Function header
  - def
  - name
  - arguments (formal parameters)
  - colon

```
def plusOne(myNum):
    """Adds one to myNum"""

    myLargerNum = myNum + 1
    return myLargerNum
```

Breaking it Down

- Function body
  - Indented
  - Docstring
  - Sequence of commands
  - Return value

```
def plusOne(myNum):
    """Adds one to myNum"""

    myLargerNum = myNum + 1
    return myLargerNum
```

Breaking it Down

- So what happens when someone calls my function?
  - Assign actual parameter to formal parameter
  - Run through function code
  - Stop at return value

```
def plusOne(myNum):
    """Adds one to myNum"""

    myLargerNum = myNum + 1
    return myLargerNum

>>> plusOne(3)
4
```