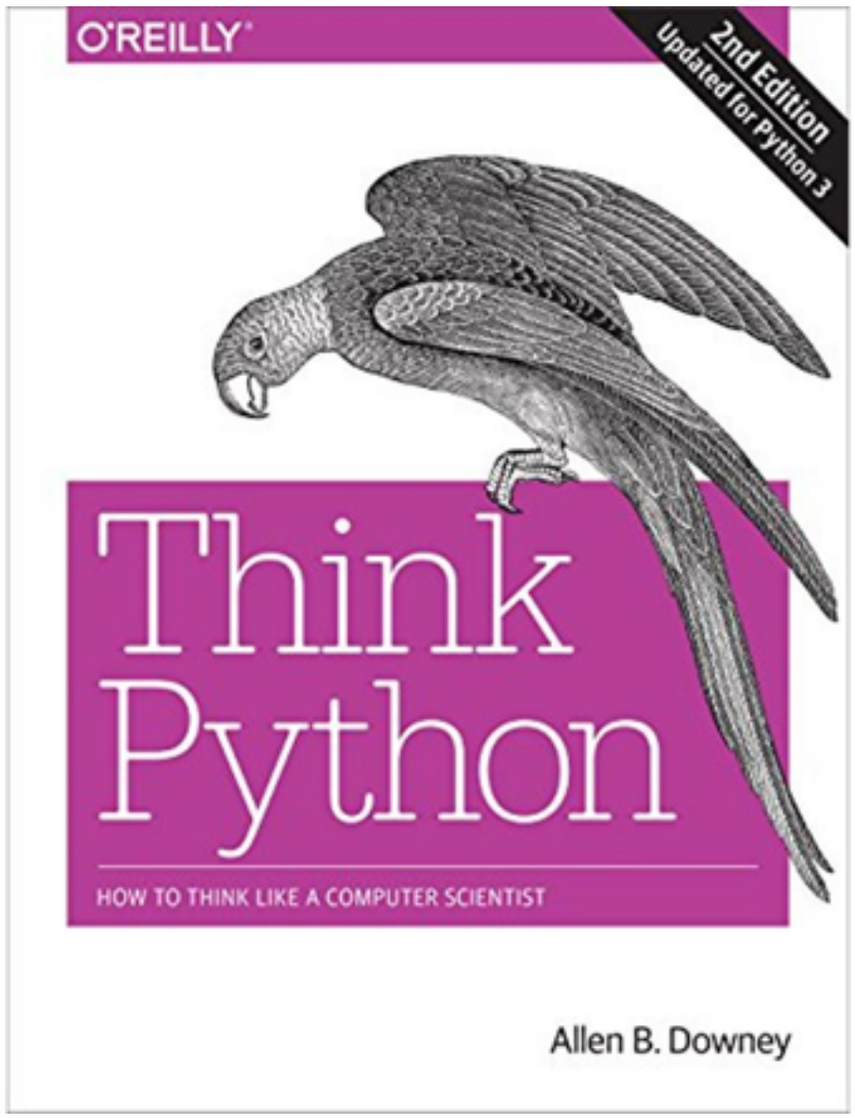
Python

Lab 8
3/9/16

"I chose Python as a working title for the project, being in a slightly irreverent mood (and a big fan of *Monty Python's Flying Circus*)."

–Guido van Rossum, Python's principal author, Benevolent Dictator for Life

How to Think Like a Computer Scientist



Available online for free:
http://greenteapress.com/wp/think-python-2e/

R and Python have many similarities, but a few important differences

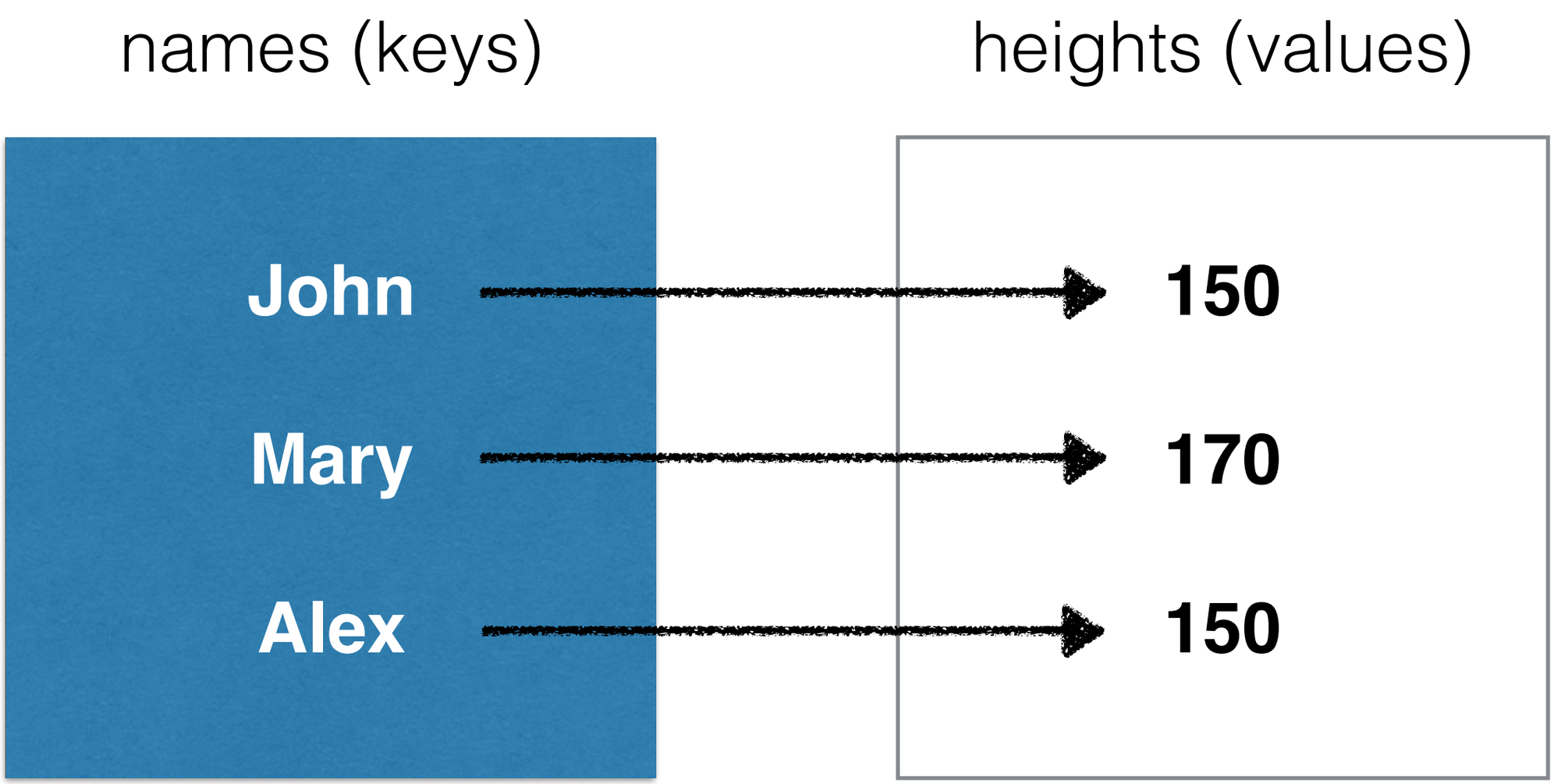
	R	Python
Assignment	`x <- 3` `3 -> x`	`x = 3`
Variable names	`my.var = 3`	`my_var = 3` `myVar = 3`
Vectors and Lists	`x <- c(1, 2, 3)`	`x = [1, 2, 3]`
Indexing	`starts at 1`	`starts at 0`
Pipe operator	`%>%`	`Does not exist!`

Tuples are like lists, but tuples are immutable

- List: `x = [1, 2, 3, 4]`
  - Uses square brackets `[ ]`
  - Can be extended and modified
- Tuple: `x = (1, 2, 3, 4)`
  - Uses parentheses `( )`
  - Tuple with single value must have a trailing comma: `(5,)`
  - Defined once and cannot be changed

Strings are also immutable.

Dictionaries contain key-value pairs




```
height = {‘John’: 150, ‘Mary’: 170, ‘Alex’: 150}
```

Dictionaries are unordered

- Dictionaries are unordered, so there is no position 0, position 1, position 2, etc. like we saw with lists

- Dictionaries do not have indices, they have keys

- The syntax to access a value in a dictionary is similar to that of a list:

  `height['John']` returns `150`

Before submitting an ipython notebook assignment, *all cells must be re-run*.