Programming Workshop: Practice, Practice, Practice!

Beginner's Workshop #5
17 October 2016

Outline

1. “Homework” - Completion
2. GitHub - Fork Our Repository (just in case!)
3. Review: Using Vim
4. Review: Input/Output (I/O)
5. Dictionaries!
    a. Overview
    b. Syntax
    c. Practice
6. Exercises

“Homework”

1. **Get Linux and Python running!**
2. Make a GitHub account and fork our repository
3. Go through the Codecademy Python lesson

Forking our GitHub Repository

Forking our repository:

1. Open our repo in a web browser
2. In the upper right side of the interface, click “fork this repository”
3. In the list of your repositories, select the fork of our repository
4. Clone your fork of our repository to your computer

VIM commands

Command	Description
vim <file>	Open file <file>
i	Go into insert mode
v	Go into visual mode
Arrow keys	Move up, down, left, or right
y	When in visual mode, select text, and use ‘y’ to copy (yank)
p	When **not in any mode**, use ‘p’ to paste on the character or row following cursor
:w	Save (write) file
:q	Exit (quit)

Python Basics: I/O

File input collected via:

```
file_reference = open(“filename”, “mode”)
```

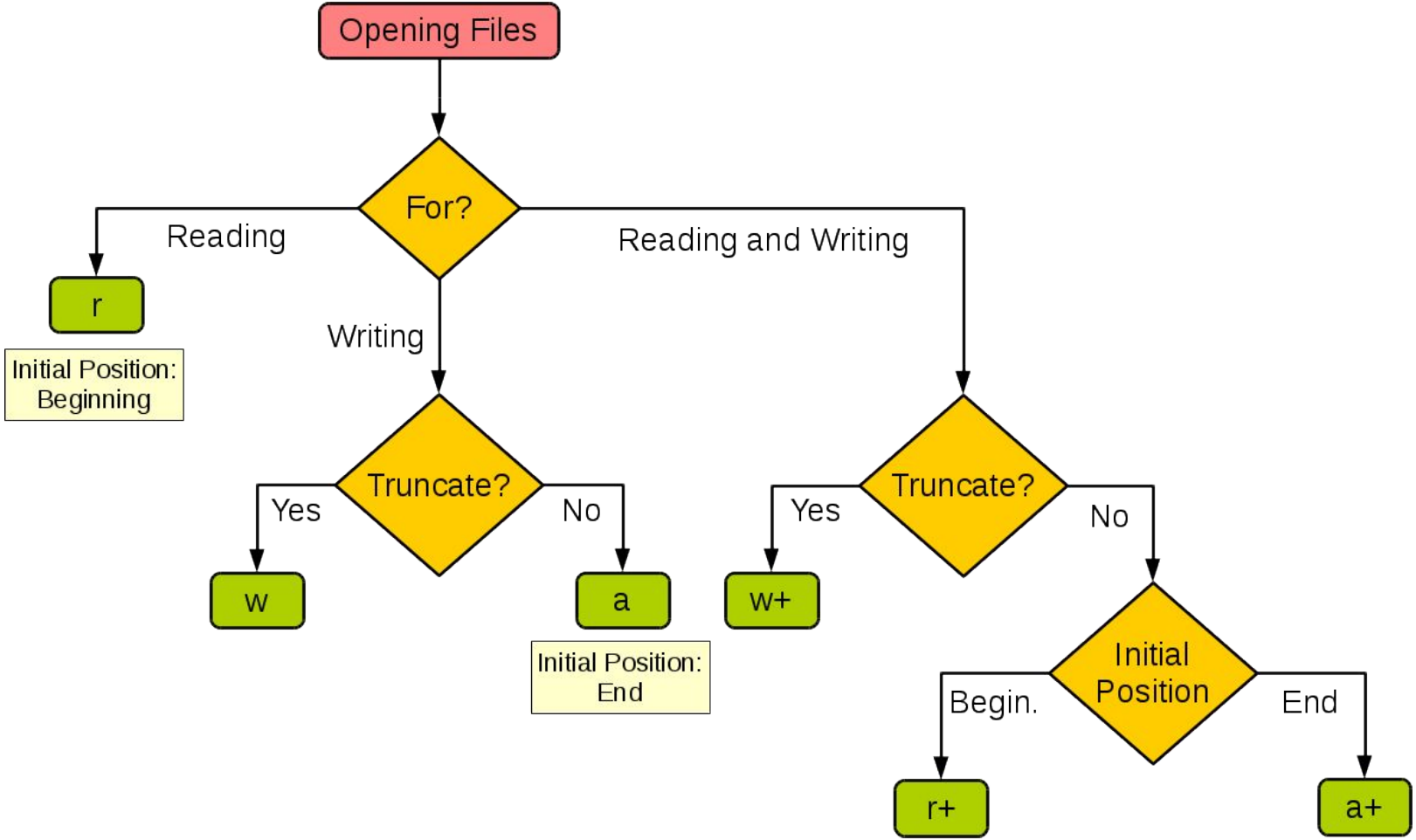
Then can write to file:

```
file_reference.write()
```

Python Basics: I/O (cont’d)

Many types of output:

- `print()`
- `open(“filename”, “mode”)`
  - `file.write()`
- `with open() as csvfile: …`
  - `csv.writerow()`



http://stackoverflow.com/questions/1466000/python-open-built-in-function-difference-between-modes-a-a-w-w-and-r

Updating your Fork

git remote add upstream https://github.com/mseryn/intermediate_programming_workshops

git fetch upstream

git merge upstream/master

Dictionaries

- Called a “map” in some languages
- Stores a value given some key
  - EX:
    - First_years -> [list of names]
    - Cans_collected -> 45
    - Test_set_1 -> [list of data points]
- *Very* useful for data analysis

Dictionaries - Syntax

```
# Initialize:
new_dict = {}
other_dict = {“banana”: 2, “egg”: 10}

# Add/Overwrite items - note they’re indexed like
arrays
new_dict[“hot sauce”] = 1
other_dict[“banana”] = 0
new_dict[“cheese types”] = []
new_dict[“cheese types”].append(“cheddar”)
```

Dictionaries - Practice

A little practice in the interpreter:

Make a dictionary to store people’s names by their zip codes. Have it take user inputs to collect this data.

Speed Exercises

1:

Read from the file exercise_1_inputs.txt. Each line is an integer. Average these integers, and print the average.

240 seconds

~~Speed~~ Exercises

2:

Read the file dictionary_inputs.txt. Each line is a key, value pair separated by a space. Store the values under their key in a dictionary. Print the dictionary.

15 minutes

~~Speed~~ Exercises

3:

Take the dictionary from #2.

Take an input from the user. If it’s a key, print that key’s value.

10 minutes

“Homework”

1. Go through the Codecademy Python lesson
2. Play Vim Adventures or read Vim tutorials
3. Finish exercises 2 and 3