GWC Lesson 12

Dictionaries and File Reading

Dictionaries

- Dictionaries are similar to a list data structure, however each element will have a “key” value associated with it
- Declared using curly brackets:

  dict = {1:”a”, 2: “b”, 3 : “c”}

  dict = {key : value}

- Keys can be anything, and are immutable
  - Side note: lists are mutable, strings are immutable
- Values can be any data type

Dictionaries

- You can use assignment for dictionaries

  dict_a = {} makes an empty dictionary

  or dict_b = () also makes an empty dictionary

- Assigning values to dictionaries:

  dict_b[key] = value

For Example:

dict_b[1] = “a”

dict_b[2] = “b” → dict_b = {1:”a”, 2:”b”, 3:”c”}

dict_b [3] = “c”

Dictionaries

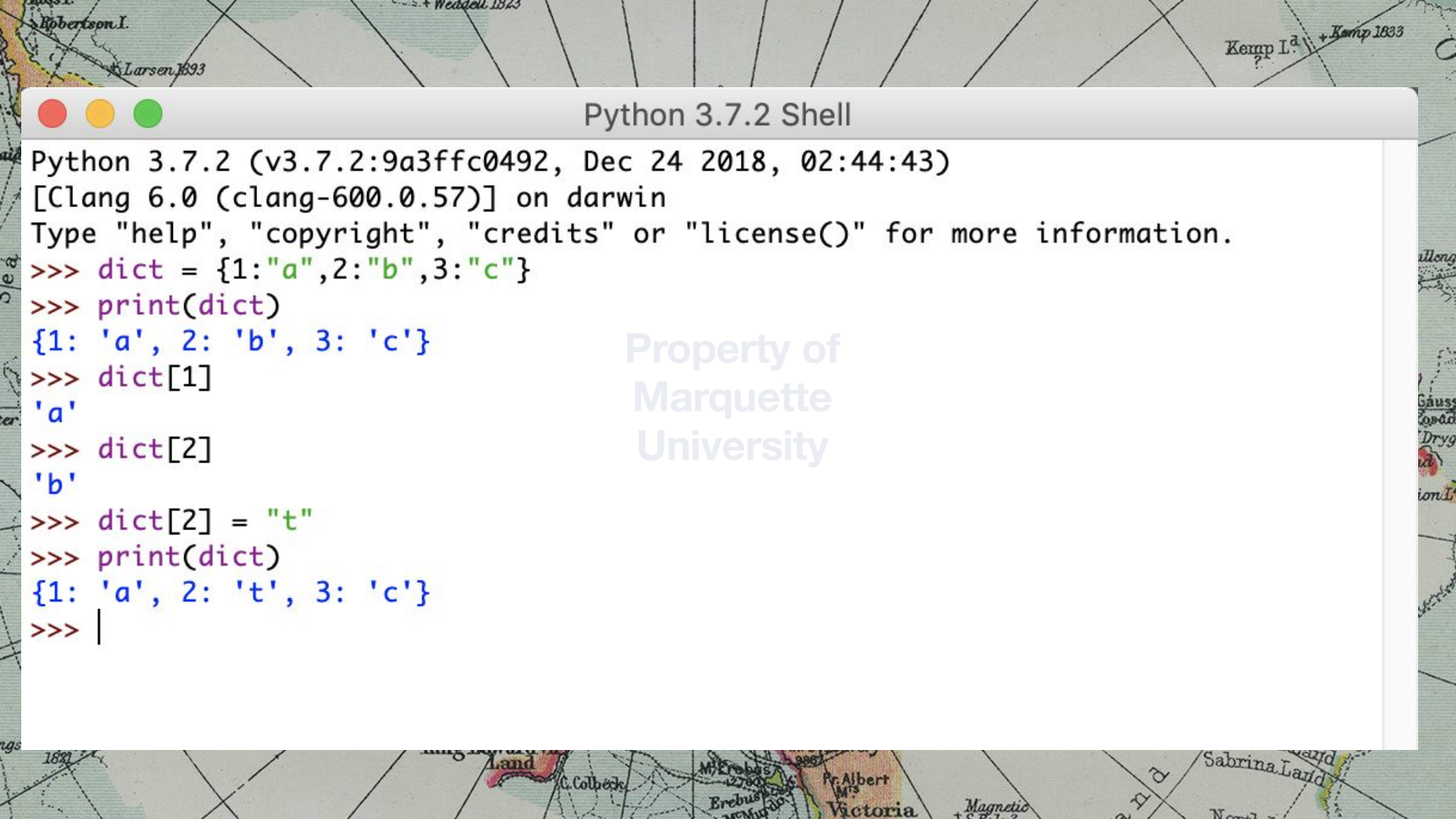
- Accessing Values:

  “Name of dictionary variable”[KEY GOES HERE]

- .get() function allows you to also access a value if you know what the key you need is

  dict_b.get(1) .get(KEY GOES HERE)

- .pop() will do the same thing as .get()
  - Will return a value if you give it a key


Python 3.7.2 Shell
Python 3.7.2 (v3.7.2:9a3ffc0492, Dec 24 2018, 02:44:43)
[Clang 6.0 (clang-600.0.57)] on darwin
Type "help", "copyright", "credits" or "license()" for more information.
>>> dict = {1:"a",2:"b",3:"c"}
>>> print(dict)
{1: 'a', 2: 'b', 3: 'c'}
>>> dict[1]
'a'
>>> dict[2]
'b'
>>> dict[2] = "t"
>>> print(dict)
{1: 'a', 2: 't', 3: 'c'}
>>>
Property of
Marquette
University

File Reading

- Another commonly used operation in computer science is file reading, editing, or creating
- The easiest files we will try to manipulate are .txt files or simple text only files.
- To do this you need to be able to access the path to a file on your machine
- Absolute Path: Navigation from the root of the file system
- Relative Path: Navigation from the directory of a file
  - Using the relative path is easiest
  - This means, storing the file you want to manipulate in the same folder/directory that you store your code

File Reading

- Absolute Path on MAC/Unix machines:

  Users/katietooher/Python/sample.py

- Absolute Path on Windows Machine:

  c:\\users\\ktooher\\documents\\Python\\sample.py

File Reading

- There are 4 file manipulation operations:
  - Reading from a file: (r)
  - Writing to a file (w)
  - Appending (adding to the end) (a)
  - Reading a file AND writing to the file (r+) (plus symbol)

File Reading

- Steps to using a file;
  1. First you need to open the file
  2. Manipulate the file
  3. Close the file if your program will still run
  4. OR the file will close once your program terminates

File Reading

- Two ways to open a file:

1. Assign the file Object to a variable

   file1 = open(“data.txt”, r)

   file2 = open(“data.txt”,w)

   file3 = open(“data.txt”, r+) file4 = (“data.txt”, a)

2. You define the file name at the end of this line of code:

   with open(“data.txt”, “r”) as file1:

Activities

1. Use a dictionary to count how many vowels and how many consonants a word has,
    a. You will use user input as the string you will be testing for the amount of vowels and consonants