DAT-119 – Python 1

**Homework 8**

As always, you need to write these programs *without searching online*. You can use the textbook, the Jupyter notebooks, conversations with your colleagues and me, and the approved resources; that’s all. If you get code from anywhere besides your own brain (*especially* if it comes from any approved outside resource or from reading ahead in the book), you need to cite the source in a comment.

Also, as always, **be sure to follow the style guide**, including turning in a plan with your code. Seriously, **don’t forget to plan before you code!**

1. Write a program that creates a dictionary containing the US states as keys and their capitals as values.

The program should randomly quiz the user by displaying the name of a state and asking the user to enter that state’s capital. It should keep a count of the number of correct and incorrect responses and let the user know how they are doing. It should not penalize the user for capitalization errors. It should also not ask a user about a state if they have already correctly identified the capital (if they have not, it can ask them again). If, instead of guessing, the user types “0,” the game should quit and tell them their score. <https://simple.wikipedia.org/wiki/List_of_U.S._state_capitals>

**Example program outputs:**

What is the capital of Illinois? (or enter 0 to quit): springfield

That is correct.

What is the capital of Pennsylvania? (or enter 0 to quit): Pittsburgh

That is incorrect. It is Harrisburg.

What is the capital of North Dakota? (or enter 0 to quit): bismarck

That is correct.

What is the capital of Nevada? (or enter 0 to quit): Las Vegas

That is incorrect. It is Carson City.

What is the capital of Iowa? (or enter 0 to quit): 0

You had 2 correct responses and 2 incorrect responses.

1. Write a script that gets a sentence from the user and then uses a dictionary to summarize the number of occurrences of each letter. Ignore case, ignore blanks, and ignore punctuation. Display a two-column table of the letters (in alphabetical order) and their counts.

**Example program outputs:**

Give me a sentence, and I'll count the letters: *A quick brown fox jumps over the lazy dog*

a: 2 b: 1

c: 1 d: 1

e: 2 f: 1

g: 1 h: 1

i: 1 j: 1

k: 1 l: 1

m: 1 n: 1

o: 4 p: 1

q: 1 r: 2

s: 1 t: 1

u: 2 v: 1

w: 1 x: 1

y: 1 z: 1

Give me a sentence, and I'll count the letters: *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.*

a: 7 b: 1

c: 4 d: 8

e: 11 g: 2

i: 11 l: 6

m: 6 n: 5

o: 10 p: 3

q: 1 r: 6

s: 6 t: 9

u: 6

(notice f, h, j, k, and v-z did not print in the second example, because they weren’t in the string)