Homework #3

Email your answers as attachments to `huang.uclax@gmail.com`

Due: 2017-05-02 23:59

1. What is the output of each of the following commands:

   1. `len(['hello', 'world'])`
   2. `len('hello world')`
   3. `len({'x': 30, 'y': 60})`

2. (`hw3a.py`) Write a Python program that responds to user's keyboard input in the following manner:

   1. If the user enters `morning`, print `1`.
   2. If the user enters `afternoon`, print `2`.
   3. For any other input, print `0`.

   Add comments in your program to explain (in reasonable details) what it is doing.

3. (`hw3b.py`) Consider the temperature conversion program discussed in the class. Generalize the program such that it can understand "C" and "F" in either upper or lower case:

   1. The program prompts user input (e.g. "`Enter temperature, e.g. 35C or 70F`")
   2. When the user enters, e.g. either "`35C`" or "`35c`", the program converts it to the correct degree in Fahrenheit and prints out the result.
   3. When the user enters, e.g. either "`70F`" or "`70f`", the program converts it to the correct degree in Celsius and prints out the result.
   4. If the temperature input does not end with `C`, `c`, `F`, or `f`, the program prints out an error message and stops.

   Add comments in your program to explain what it is doing. Verify the correcness of your conversion using `https://goo.gl/dtsJPw`.

4. (`hw3c.py`) Write a function named `namelist` that takes a dictionary as the input argument, and prints out all of its (key, value) pairs. In the dictionary, the keys are student names and the values are the classes. In the output, the names are left-aligned and the classes are right-aligned. For example,

```
>>> d = {'Smith': 'Sophomore',  'Olympia': 'Junior', 'Pierre': 'Sophomore'}
>>> namelist(d)
>>>
Name          Class
------------------
Smith     Sophomore
Olympia      Junior
Pierre    Sophomore
```

5. (`hw3d.py`) Write a function named `count_word` that takes a list of words, and returns a dictionary in which the keys are the unique words. The value of a key is the number of times the word has appeared in the list.

   For example,

```
>>> a = ['cat', 'earth', 'dog', 'cat']
>>> x = count_word(a)
>>> print(x)
{'earth': 1, 'cat': 2, 'dog': 1}
```