CptS355 - Python Class Exercises

1) histo(s)

(a) Define a function, histo(s) computing the histogram of a given string. The histogram returned by the function is a list of characters in the input string s each paired with its frequency. Characters must appear in the list ordered from **most frequent to least frequent**. For example,

```
histo('implemented')
```
is
```
[('e',3), ('m',2), ('d',1),('i',1), ('l',1), ('n',1), ('p',1), ('t',1)]
```

(Characters with the same frequency must appear in increasing alphabetical order.)

```
def histo(s):
    #write your code here
    pass
```

(b) Re-write `histo(s)` function using list comprehension.

2) sumSales(d)

(a) Assume that you have an online sales business and you sell products on Amazon, Ebay, Etsy, etc. and you keep track of your daily sales (in $) for each online store. You maintain the log of your sales in a Python dictionary as follows:

```
{'Amazon':{'Mon':30,'Wed':100,'Sat':200},
'Etsy':{'Mon':50,'Tue':20,'Wed':25,'Fri':30},
'Ebay':{'Tue':60,'Wed':100,'Thu':30},
'Shopify':{'Tue':100,'Thu':50,'Sat':20}}
```

The keys of the dictionary are the online stores and the values are the dictionaries which include the total sales on different days of the week. Note that if there are no sales in a particular store during the week, that store will not appear in the dictionary.

Define a function, **`sumSales(d)`** which adds up the amount of sales you made on each day of the week and returns the summed values as a dictionary. Note that the keys in the resulting dictionary should be the days of the week and the values should be the total amount of sales (in $) you made on that day. **`sumSales`** will return the following for the above dictionary:

```
{'Fri': 30, 'Mon': 80, 'Sat': 220, 'Thu': 80, 'Tue': 180, 'Wed': 225}
```

(b) Define a function, `combineDicts`, that takes two dictionaries as input and combines them. The resulting dictionary should include all keys that appear in either of the input dictionaries. The values of the common keys common keys should be added (i.e., summed) .

For example:

```
combine_dicts({'Mon':30,'Wed':100,'Sat':200},
              {'Mon':50,'Tue':20,'Wed':25,'Fri':30})
```

returns

```
{'Fri': 30, 'Mon': 80, 'Sat': 200, 'Tue': 20, 'Wed': 125}
```