CMSC 201 Fall 2017
Lab 07 – Decoder

Assignment: Lab 07 – Decoder
Due Date: Thursday, October 19th by 8:59:59 PM
Value: 10 points

Part 1A: Review – Traversing Lists

Iterating over the contents of a list is also known as *traversing* the list, and can be done using a basic `while` loop. In the loop, we use a variable to keep track of which item in the list we are looking at by having it store the index of that item. As we move on to the next item, that variable is incremented, until we reach the end of the list.

For example, this code would traverse the list `myList`, printing out the contents of the list:

```python
# this variable can be called anything
# it starts at zero because that's the first index
index = 0
while index < len(myList):
    print( myList[index])
    index += 1
```

Part 1B: Review – Strings

In Python, we can represent text (a sequence of characters) using the *string* data type. A string in Python is created like so:

```python
my_name = "John Doe"
```

So far, we have learned a few *operations* that you can perform on strings:

`theString.upper()`	show what the `theString` would be in all uppercase
`theString.lower()`	show what the `theString` would be in all lowercase
`len(theString)`	gives the length of `theString`
`theString + anotherString`	concatenates `theString` and `anotherString` together

Part 2: Exercise

In this lab, you'll be downloading a file and completing it by writing a single function that the program will call multiple times.

The function you'll be coding will take in a list of strings, and will find a secret message by extracting the capital letter from each string, and putting them all together to form the secret.

Tasks

Starting:
- ☐ Copy the **given_decoder.py** file from Dr. Gibson's **pub** directory
    - ☐ It should have been renamed to be **decoder.py**
- ☐ Complete the file header comment at the top

Functions:
- ☐ Write the code for **decode()**

General:
- ☐ Run and test your code as needed
- ☐ Submit completed **decoder.py** file

Part 3A: Downloading the File

First, create the `lab07` folder using the `mkdir` command -- the folder needs to be inside your `Labs` folder as well.

Next, copy a file into your `lab07` folder using the `cp` command.

`cp /afs/umbc.edu/users/k/k/k38/pub/cs201/given_decoder.py decoder.py`

This will copy the file `given_decoder.py` from Dr. Gibson's public folder into your current folder, and will change the file's name to `decoder.py` instead.

The first thing you should do in your file is complete the file header comment, filling in your name, section number, email, and the date.

Part 3B: Creating Function

At this point, if you try to run the file, you will not see any of the hidden messages. That is because the file is only partially completed for you.

You will need to update the file to complete the **decode()** function definition. If you open the file, you should see a comment boxed in by **#-------#** characters – this is where you need to write new code. Read the function header comment to see the details about the function.

You <u>do not</u> need to write calls to the function. The places where these calls need to happen in **main()** are already completed for you. You shouldn't need to write any code other than completing the **decode()** function.

Here is sample output of the completed program. It only contains the secret for the first and second messages. To find the secret in the third message, you'll need to complete the program!

```
bash-4.1$ python decoder.py
Message 1's secret was:
SECRET

Message 2's secret was:
DOGSAREGOOD

Message 3's secret was:
????? [secret!!!!]
```

Part 4: Completing Your Lab

Since this is an online lab, you will need to use the **submit** command to complete your lab.

To submit your file (which is due Thursday, October 19th, 2017 by 8:59:59 PM), use the command:

```
linux1[4]% submit cs201 LAB7 decoder.py
Submitting decoder.py...OK
linux1[5]%
```

If you don't get a confirmation like the one above, check that you have not made any typos or errors in the command.

Tasks

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Functions:
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General:
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