Midterm #2 Review

CS 8: Introduction to Computer Science
Lecture #12

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Midterm #2 is on Thursday 5/18

Homework assignment is due
                    TUESDAY, 5/23
<u>Highly recommend</u> that you work on it
                    as prep for the midterm!

Midterm #2 Topics
Lectures 7 thru 11

- **Strings**, their functions and manipulations

- **Lists** and their functions

- **Dictionaries** and their functions

- **File I/O**,
  including reading files from the Internet

SAMPLE QUESTIONS

To help for midterm exam#2 preparations

Question 1

Write a Python function, **BackOne()**, that asks the user for an input string and then prints out a modified (encoded) version of that string.

The modification makes every character in the string **go back one position**, so, for example, a 'b' would become an 'a', etc... Such that, for example, the string "Jimbo" would become "Ihlan". This function does not return anything – it simply prints out the answer.

Question 2

You have to decode a secret message. You are told that, when it was originally encrypted, the message's letters were shifted forward by 7 places, except if these letters were the last 7 letters of the alphabet (lower case), in which case, they were passed onto the encoded version unchanged.

Write a Python function, **Reverse()**, that decodes the message. This function takes in the encoded message as parameter and returns the decoded message back to the program that called the function. You get full credit if you can make the correct function use the smallest amount of instructions/code
(i.e. closest to 8 lines).

Question 3

What is the exact output of this Python code?

```python
abbal = ['Mama Mia', 'Waterloo', 'Fernando',
'Take a Chance', 'Dancing Queen', 'Voulez Vous']

for x in abbal:
    if x[1] == 'a' and len(x) > 8:
        print (x)
```

Question 4

What is the exact output of this Python code?

```python
sum = 0
D = {'CA':38, 'TX':26, 'NY':20, 'FL':19, 'IL':12}
for n in list(D.values()):
    if n >= 20:
        sum = sum + n
    else:
        sum = sum - n
print ("That magic number is %d!" % sum//5)
```

Question 5

What is the exact output of this Python code?

```python
mer = ['Google', 73, -12, 'Apple', 'Amazon', 55, 0]
mer.append(3.1)
mer.append(mer[1])
mer.append(len(mer))
mer.reverse()
     for k in range(5):
        mer.pop()
mer.sort()
mer = [mer] * 2
print(mer)
```

Question 6

What does this Python program print out?

```python
def func1(alist):
    alist = alist + list(range(4))
    m = max(alist) - min (alist)
    n = (sum(alist)**2) // m
    return list(range(3, n))

l = [6, -4, 1, 0]
for x in func1(l):
    print( chr(ord('a') + x), end = "." )
```

Question 7

Write some Python code that writes a string, **"Here they are:"**, followed by all the numbers between 5 and 9 (inclusive) – all to a file called **"outputs.txt"**.

Each entry is written on a separate line.

You **must** use a for-loop.

Question 8

Find the 6 mistakes in this Python code:

```
infile = open('data.txt', 'read')
```
'r'
XXXX

```
x = infile.read()
```

```
x.pop()
```
Bad syntax: *.pop() only works on lists*

```
for y in x
```
Bad syntax: *missing :*

```
    if y = 'y':
```
Bad syntax: *= should be ==*

```
        print y
```
Bad syntax: print needs ( )

Missing *infile.close()*

Question 9

A Python function, **Break2**, is supposed to take a string input and "break it off" 2 characters at a time, then place these sub-strings inside of a list.

If the string has an odd number of characters, then the last sub-string ends with an 'x' character. The function returns this list.

For example, **Break2("porcupine")** returns
['po', 'rc', 'up', 'in', 'ex']

Fill in the missing code below to achieve this function

```python
def Break2(s):
    la = []
    nub = ""
    for i in range(0, len(s), 2):
        if i < (len(s) - 1):
            nub = s[i] + s[i+1]
        else:
            nub = s[i] + "x"
        la.append(nub)
    return la
```

</LECTURE>