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Problem 1 - Build the Shift Dictionary and Apply Shift

Problem Set due Jul 23, 2020 20:30 -03

Problem 1 - Build the Shift Dictionary and Apply Shift

20/20 points (graded)

The Message class contains methods that could be used to apply a cipher to a string, either to encrypt or to decrypt a message (since for Caesar codes this is the same action).

In the next two questions, you will fill in the methods of the Message class found in ps6.py according to the specifications in the docstrings. The methods in the Message class already filled in are:

- __init__(self, text)
- The getter method [get_message_text(self)]
- The getter method get_valid_words(self), notice that this one returns a copy of self.valid_words to prevent someone from mutating the original list.

In this problem, you will fill in two methods:

1. Fill in the <code>build_shift_dict(self, shift)</code> method of the <code>Message</code> class. Be sure that your dictionary includes both lower and upper case letters, but that the shifted character for a lower case letter and its uppercase version are lower and upper case instances of the same letter. What this means is that if the original letter is "a" and its shifted value is "c", the letter "A" should shift to the letter "C".

If you are unfamiliar with the ordering or characters of the English alphabet, we will be following the letter ordering displayed by string.ascii_lowercase and string.ascii_uppercase:

```
>>> import string
>>> print(string.ascii_lowercase)
abcdefghijklmnopqrstuvwxyz
>>> print(string.ascii_uppercase)
ABCDEFGHIJKLMNOPQRSTUVWXYZ
```

A reminder from the introduction page - characters such as the space character, commas, periods, exclamation points, etc will *not* be encrypted by this cipher - basically, all the characters within string.punctuation, plus the space ('') and all numerical characters (0 - 9) found in string.digits.

2. Fill in the <code>apply_shift(self, shift)</code> method of the <code>Message</code> class. You may find it easier to use <code>build_shift_dict(self, shift)</code>. Remember that spaces and punctuation should not be changed by the cipher.

Paste your implementation of the Message class in the box below.

```
1 class Message(object):
 2
      ### DO NOT MODIFY THIS METHOD ###
 3
      def __init__(self, text):
 4
 5
          Initializes a Message object
 6
 7
          text (string): the message's text
 8
 9
          a Message object has two attributes:
               self.message_text (string, determined by input text)
10
11
               self.valid_words (list, determined using helper function load_words
12
13
          self.message_text = text
14
           self.valid_words = load_words(WORDLIST_FILENAME)
15
      ### DO NOT MODIEV THIS METHOD ###
```

Press ESC then TAB or click outside of the code editor to exit

Correta

Test results

```
CORRECT

Test: 1 build shift dict
```

build_shift_dict with 0 Output: passed Test: 2 build shift dict build_shift_dict with 5 shift Output: passed Test: 3 build shift dict build_shift_dict with 16 shift Output: passed Test: 4 build shift dict build_shift_dict with 25 Output: passed Test: 5 apply shift

apply_shift on "hello" with 0 shift

Output:

hello

Test: 6 apply shift

apply_shift on "we are taking 6.00.1x" with random shift

Output:

ck gxk zgqotm 6.00.1d

Test: 7 apply shift

apply_shift on "th!s is Problem Set 6?" with random shift

Output:

ym!x nx Uwtgqjr Xjy 6?

Test: 8 apply shift

apply_shift on "TESTING.... so many words we are testing out your code: last one" with random shift

Output:

KVJKZEX.... jf drep nfiuj nv riv kvjkzex flk pfli tfuv: crjk fev

<u>Hide output</u>

You have used 3 of 30 attempts

Enviar

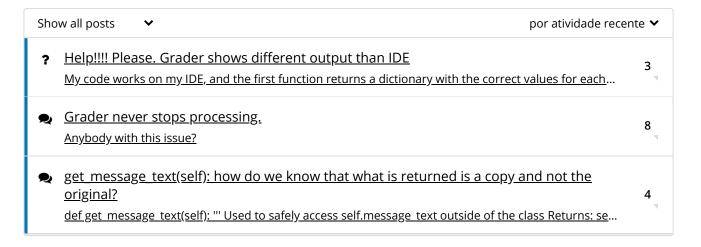
✓ Correct (20/20 points)

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