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# Exercise: hand

Finger Exercises due Aug 5, 2020 20:30 -03

## Exercise: hand

5/5 points (graded)

**ESTIMATED TIME TO COMPLETE: 14 minutes**

In this problem, you'll be asked to read through an object-oriented implementation of the hand from the word game problem of Problem Set 4. You'll then be asked to implement one of its methods. Note that the implementation of the object-oriented version of the hand is a bit different than how we did things with the functional implementation; pay close attention to doc strings and read through the implementation carefully.

To begin: Download hand.py and read through the file. Be sure to understand what's going on in the file. Make a few instances of the `Hand` class, and play around with the existing methods.

When you have completed reading through the file, implement the `update` method.

Paste the entire `Hand` class in the box below.

The `__str__` method is this:

```
    def __str__(self):
        '''
        Display a string representation of the hand.
        '''
        output = ''
        hand_keys = sorted(self.hand.keys())
        for letter in hand_keys:
            for j in range(self.hand[letter]):
                output += letter
        return output
```

Use this `__str__` method to ensure the grading of the hand's display is consistent.

```
# Paste the entire Hand class in this box
class Hand(object):
    def __init__(self, n):
        '''
        Initialize a Hand.

        n: integer, the size of the hand.
        '''
        assert type(n) == int
        self.HAND_SIZE = n
        self.VOWELS = 'aeiou'
        self.CONSONANTS = 'bcdfghjklmnpqrstvwxyz'

        # Deal a new hand
        self.dealNewHand()
```

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

Correta

```
# This is the solution for the update method only.

    def update(self, word):
        """
        Does not assume that self.hand has all the letters in word.

        Updates the hand: if self.hand does have all the letters to make
        the word, modifies self.hand by using up the letters in the given word.

        Returns True if the word was able to be made with the letter in
        the hand; False otherwise.

        word: string
        returns: Boolean (if the word was or was not made)
        """
        # Make a copy of the hand, and try to update it
        new_hand = self.hand.copy()
        for letter in word:
            try:
                new_hand[letter] -= 1
            except KeyError:
                # if 'letter' isn't in the hand, we can't make the word from this hand.
                return False
        for letter in new_hand.keys():
            # If any of the letter counts of the new hand are less than zero after the
            # update, then we can't make the word from this hand.
            if new_hand[letter] < 0:
                return False
        # If we've gotten to here, we must be able to make the word from this hand.
        # Set self.hand to the new, updated hand and return True.
        self.hand = new_hand
        return True
```

# Test results

**Hide output**

**CORRECT**

Test: can make words

**Output:**

```
myHand = Hand(7)
myHand.setDummyHand('aulqqik')
myHand.update(quail): True
print myHand
kq

myHand = Hand(14)
myHand.setDummyHand('ccclllaapppttrr')
myHand.update(claptrap): True
print myHand
cclprt

myHand = Hand(4)
myHand.setDummyHand('odgz')
myHand.update(dog): True
print myHand
z

myHand = Hand(30)
myHand.setDummyHand('qqqwwweeerrrtttyyyuuuiiiooooppp')
myHand.update(typewriter): True
print myHand
eiiooooppqqqrtuuuwwyy
```

Test: randomized input

**Output:**

```
myHand = Hand(9)
myHand.setDummyHand('hsosqlqnf')
myHand.update(shoe): False
print myHand
fhlnoqqss

myHand = Hand(9)
myHand.setDummyHand('ulpmlvgwn')
myHand.update(plum): True
print myHand
glnvw

myHand = Hand(8)
myHand.setDummyHand('aeavkrax')
myHand.update(tea): False
print myHand
aaaekrvx

myHand = Hand(9)
myHand.setDummyHand('cukkhkezd')
myHand.update(duck): True
print myHand
ehkkz
```

Hide output

**Note:** Strings in the test cases in "See full output" are actually srings. When you test your code, they should be myHand.update('shoe') not myHand.update(shoe).

Enviar

Answers are displayed within the problem

## Exercise: hand

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