Lab 3 Text, if

Learning Goals

1. Work with text.

2. Cope with quotes inside strings.

3. Define some text function that return a string.

4. Call those functions.

Work with text

Assuming your name is Jan Smith, start each file you submit with

```
# Jan Smith
```

Lab3-1.py
Assigning string values containing quotes and other "interesting" characters.

Assign the phrases below to the variables `phrase1` and `phrase2`, using different mechanisms for each. For example, you might use " " double quotes for phrase1 and an escape sequence for phrase2. For the next phrase, you might use some other techniques – some solutions might use several lines, assigning values to several variables.

a. We'll be all right.

b. "No way!" he said.

c. Chris said "It's OK" and it was.

d. Use \n for a "newline."

Lab3-2.py
Print string and its length:

a. "*" + 20 * "-"

b. "VW\nBMW"

c. '' (the empty string)

Lab-3-3.py
Print a mix of text literals and variables

Make these assignments to the variables `age` and `weight`

```
age = 2
weight = 11.5
```

Use the print function to print the following messages. When numbers appear in the messages, use the variables `age` and `weight`, not the numbers in your call to the print function.

a. The beagle is 2 years old.
b. 11.5 is the average weight.
c. 11.5 - 2 is 9.5.

Lab-3-4.py
Use the input function to get a price from the user and convert it to float, then print it.
Your prompt to the user should say something like "Enter the price: ".

Round the price to 2 decimal places, then print it.

Lab-3-5.py
Package the input code from 3-4 to define a `get_float(prompt)` function.

Call the function to get a floating point number from a user. Multiply the number by 2 and print it, rounded to 2 decimal places.

Lab 3-6 Detect palindromes from user input typed in (ask for lower case letters only)

The issue

You prompt a user to type in a phrase or sentence, using lower case letters only, and your program will correctly announce either "You typed a palindrome - reads the same forward as backward" or
"You did not type a palindrome".

"stars rats" – this is a palindrome
"a man, a plan, a canal, Panama!" – palindrome also
"Olive live" – not a palindrome

3-6 Part 1 A Plan

```
# Using comments,
# sketch out how you will tackle
# the problem. (Not python code,
# just how you will break the problem
# into smaller chunks).
```

You notice some issues to tackle:

getting user input
copying the input
cleaning out non-letters
creating a copy of the cleaned input, with letters in reversed order.

3-6 Part 2 Write a couple of functions

```
# Create a "stub"
def clean_letters(a_string):
    print("clean_letters")
    return "starrats"
```

As you run your program, you should see the result of calling your "stub" functions. If not, figure why not and fix.

3-6 Part 3 Make a function useful

```
# Use a 'for' loop to run through
letters in your string. Use some form of if
to decide which letters to keep.
```

You might want to try a tiny program to get this logic

```
def clean_letters(a_string):
  """ (str) -> str
    return a cleaned-up copy of the input
    string (letters only) no blanks etc.
  """
  clean_string = ''   # start with empty string
  for letter in a_string:
     if ... You need to decide how to tell it's
           good....
        clean_string += letter
  return clean_string

# call to test
test = "nbc news"
x = clean_letters(test)
# for this example, should get 'nbcnews'
print(x)
```

If you run into trouble, you can go to **pythontutor.com** and run the Python 3.3 **visualizer** to run your code one instruction at a time.

3-6 Part 4 Make a function useful

```
# Use a 'for' loop to run through
letters in your string to create a copy of
the string in reverse order.
    'abc' -> 'cba'
    Hint: another 'for' loop.
```

3-6 Part 5 All together, plus one more 'if' to compare a reversed clean string with a clean string. If equal. we have a palindrome.

Grading

Lab 3-1 **4 points**

4 strings to create, 1 point each

Lab 3-2 **3 points**

3 strings and their lengths to print each,

0.5 point for string
0.5 point for its length

Lab 3-3 **3 points**

1 point for each printing using variables age and/or weight.

Lab 3-4 **5 points**

1 call input function
1 call includes a prompt message; includes a trailing blank
2 convert return value from input from string to float
1 print the float value, rounded to 2 decimals.

Lab 3-5 **5 points**

Create a get_float(prompt) function

1 def function
2 docstring included with function
1 function returns a float value
1 print the float value

Get this done by next Monday.

Lab 3-6 **detect palindromes**

(phrases that read the same forward as well as backward: 'madam, I'm adam')

part 1 **5 points**

comments note how
you plan to tackle the issue

part 2 **5 points**

create def and return
but not a working body
for your functions

for loop to process each letter
5 points

compare cleaned-up string to its reverse (detecting a palindrome).
5 points

Start to work on the palindrome problem, but you will be able to submit this after Monday if you have not finished it.