Week 3: Review

Re-submit Assignment

Due Feb 2 by 11:59pm **Points** 16 **Submitting** a text entry box or a file upload

Overview

When attempting these problems, please keep in my mind the nature of **Academic Honesty** in this course. This week you should submit your response to the Week 3 Review. This will support your review of the topics covered this week and prepare you for writing your program.

Programming Exercises

1. **[my_house.py]** In a graphics window, you are to draw an outdoor scene containing a house.

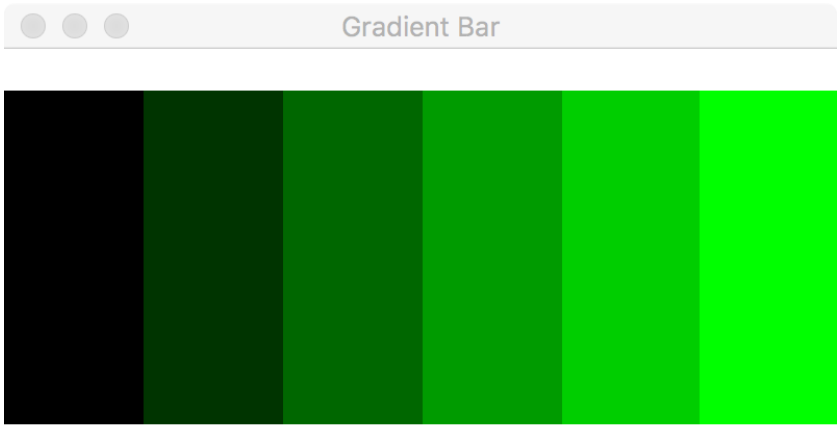
Your drawing should include at least the following shapes:

- three rectangles
- two lines
- one circle
- one text label

Your picture should not be boring black and white. It should include at least three colors, tastefully distributed to bring your house to life.

Finally, it should have some interactive feature such that when a user clicks on your picture something changes (e.g. a color changes, a tree falls over, the sun rises, a door opens). The change only has to happen once.

2. **[gradient_bar.py]**



In the picture above you will see a gradient bar. Gradients in computer graphics typically show a color progression. The example above is a progression of the green intensity from 0 to 255, with red and blue remaining at intensity 0 through the progression, spread across six rectangles. When you see graduated colors on your computer they are often created using this technique: having thinner and thinner rectangles makes a smoother gradient progression. For example, the gradient below is a green progression through 64 rectangles:

Your task is to draw a gradient bar. You can make the color progression as simple (e.g., just green intensities changing) or sophisticated (e.g., linear equations manipulating the red, green, and blue intensities independently) as you desire. Your main requirements are this:

- The window you draw the bar in must be 400 pixels wide and the progression must be horizontal.
- There can be no gaps or overlaps in the progression: no spaces between the rectangles, no spaces from the edges of the window, no bars drawn on top of one another.
- The number of bars you use must be a multiple of 6 (i.e., 6 bars, 12 bars, 18 bars, etc.)
- The bars must have no outline (hint: setWidth method)
- All bars must have a width within one pixel of the same width. For example, if we have 6 bars in a 400-pixel window, then each bar should be 66 or 67 pixels wide. This goes along with the no overlaps constraint

It is strongly recommend that you first figure out how to draw rectangles that fill the window without gaps or overlaps. Then, if necessary, consider how you could reduce the redundancy of your work using repetition. Finally work on making the colors progress (hint: a loop variable can progress through a range of values enabling your progression).

Grading Remark: If you are unable to complete this problem please turn in any work you have done. In the rubric for this assignment you will find that accomplishing parts of the problem will still earn you credit. Also, please do not fear asking for help if you need it.

Submission

Please post all necessary .py files to Canvas and include your answers to the questions under the "Canvas Submission" banner in the textbox provided.

Canvas Submission

When you submit this assignment here in Canvas, I would like you to answer the following question(s):

1. How many hours do you estimate you used completing this assignment?
2. What was easiest for you when completing this assignment?
3. What was the most difficult challenge you experienced when completing this assignment?

Week 3 Review Rubric

Criteria	Ratings		Pts
My House: Three Rectangles	**1.0 pts** **Full Marks**	**0.0 pts** **No Marks**	1.0 pts
My House: Two Lines	**1.0 pts** **Full Marks**	**0.0 pts** **No Marks**	1.0 pts
My House: One Circle	**1.0 pts** **Full Marks**	**0.0 pts** **No Marks**	1.0 pts
My House: One Text Label	**1.0 pts** **Full Marks**	**0.0 pts** **No Marks**	1.0 pts
My House: Three Colors	**1.0 pts** **Full Marks**	**0.0 pts** **No Marks**	1.0 pts
My House: House Graphic Quality	**2.0 pts** **Graphic looks like a house**	**0.0 pts** **No Marks**	2.0 pts
My House: Interactive Feature	**1.0 pts** **Click on graphic changes something**	**0.0 pts** **No Marks**	1.0 pts
Graphic Bar: Width	**0.5 pts** **Width of windows is 400px**	**0.0 pts** **No Marks**	0.5 pts
Graphic Bar: Bar Count	**1.0 pts** **Number of bars is divisible by 6**	**0.0 pts** **No Marks**	1.0 pts
Graphic Bar: Gaps	**2.0 pts** **No gaps present between bars**	**1.0 pts** **Gap either at end or between bars**	2.0 pts
Graphic Bar: Bar Width	**1.0 pts** **All bar widths within range of 1 of each other**	**0.0 pts** **No Marks**	1.0 pts

Criteria	Ratings		Pts
Graphic Bar: Color Progression	**1.0 pts** **Color progresses horizontally and uniformally**	**0.0 pts** **No Marks**	1.0 pts
Graphic Bar: Bar Outlines	**0.5 pts** **No outlies on bars**	**0.0 pts** **No Marks**	0.5 pts
Graphic Bar: Reduces Code Redundancy	**1.0 pts** **Uses loops/functions/other means where appropriate to reduce code redundancy**	**0.0 pts** **No Marks**	1.0 pts
Answers Questions in Canvas Submission	**1.0 pts** **Full Marks**	**0.0 pts** **No Marks**	1.0 pts
			Total Points: 16.0