Hi Sunny –

I have yet another project involving python graphs. I will do my best to explain what each one represents and what I’m hoping to achieve with each.

I have provided a Jupyter notebook and image made in MS Paint to help explain in more detail what I am going for. Although I made these graphs using matplotlib, my goal (like before) is to have them be as aesthetically pleasing as possible! Please feel free to use whatever plotting library you would like to achieve the graphs with the priority being look and feel.

To begin, its important to note that each of the sets of graphs is intended to be displayed in pairs. There are three pairs in total. I’m hoping to have each pair displayed as subplots because the information of each pair is related to each other.

Graph 1a

This is the only graph where there is a feature I was not able to visually represent in MS Paint. In addition to the double line graph, I would also like to add four different background colors to the chart.

The background color of each section will be determined in the csi\_data dataframe using the “quadrant” column. (csi\_data[‘quadrant’]).

For regions where csi\_data[‘quadrant’] == ‘Q1, I would like the background to be 'yellowgreen'

For regions where csi\_data[‘quadrant’] == ‘Q2, I would like the background to be ‘gold’

For regions where csi\_data[‘quadrant’] == ‘Q3, I would like the background to be ' lightcoral'

For regions where csi\_data[‘quadrant’] == ‘Q4, I would like the background to be ‘lightskyblue’

(these colors also align with the pie graph shown as Graph 2a)

I did a quick google search and I believe this is doable: <https://stackoverflow.com/questions/46961465/different-background-colour-areas-on-matplotlib-plot>

Graph 1b

This functionally is the same as the bar graphs we made a few months ago. For this graph, I would only like the values for ‘SPY’ and ‘TLT’ graphed. As before, the percents should be multiplied by 100 and the percent symbol should be added after the number.

The values will be graphed for each of the four “quadrants” and the data is available in the “df\_sum\_of\_returns” dataframe.

Graph 2a

This graph is a bit self-explanatory however the key here is for the rotation of the graph to be determined by the “quadrant\_to\_graph” variable. The reason for this is I would like for the solid lines to be drawn leading to the next double bar graph which is Graph 2b.

Graph 2b

This graph will source its data from two different dataframes. The tricky thing here is that I’m hoping to achieve a graph with two x-axes. The left x-axis will source its data from the “df\_sum\_of\_returns” dataframe… while the right x-axis will source its data from the “df\_sqn” dataframe.

Please note, only the values corresponding to the column defined in the “quadrant\_to\_graph” variable will be graphed. This way, if I change the quadrant\_to\_graph variable to a different value, the resulting output on the graph will therefore change.

Graph 3a

This graph is a little self-explanatory given the provided dataframe in the code. However, there is one additional detail. I would also like to have a regression line plotted on the graph as well (y = mx + b). I have added code to calculate the m and b values, however, I am unsure of how to add it to the graph.

Graph 3b

I believe this should be self-explanatory given the example in the Jupyter notebook.