Project 2: Histograms and Misleading Representations Instruction Document

For this project, you will continue to improve your Excel skills. You will be creating histograms and other types of visual representations of data. In addition to creating these visual representations, you will be asked to interpret different aspects of the data and even create some misleading data displays of your own.

In the Project 2 solution template please answer all questions using complete sentences and proper grammar.

Instructions for Task 1:

One of the perks of being a Wildcat is getting to attend football games and watch the University of Arizona Wildcats compete in the Pac 12 conference. We have gathered the results of the football games reaching back many years. Using Excel we are going to create a histogram that displays the Wildcat Football team win record.

Steps for creating the histogram:

1. In Excel open the spreadsheet Project 2 Excel document, and open the tab labeled UA Football Win Record.
2. The data as it is presented is not in a format that is easy to compare from season to season, or even game to game. To help with this, we are going to add a new column to the right of *Opponent score.* The cell **E1** is labeled as *Difference*. Excel has a built in calculator feature that can compute the difference for us:
    - In cell **E2**, enter the following formula as you see it here "**=C2-D2"**
    - Press enter
    - In cell **E2,** you should see the value -17. If you didn't get that, double-check your formula.
3. If we were to have to do this for every game it would be very tedious. However, Excel has a feature that allows us to copy and paste the formula in all of the appropriate cells. We did copying and pasting formulas in Project 1, but in this case we could do this more efficiently using the "fill handle".
    - Highlight cell **E3** by clicking on it.
    - You will see a small rectangle in the lower right-hand corner of the cell. This is called the "fill handle". Double-click on it.
    - Now all your cells should be filled in with the difference of the game scores.
    - Here is a good video to watch if you are having trouble with getting the calculations to work: Excel Calculate Functions

4. Now that we have the differences from step 3, we want to know how many games have had a score difference in certain ranges, and put those counts in a frequency table. The labels and classes for the frequency table have been created for you, in the tab labeled "Frequency table". In order to get the counts to enter into the table, we will use the filter feature, like we did for Project 1.
    - Obtain the filters on each of the columns as you did in Project 1.
    - Click on the drop-down menu in the lower right hand corner of the Difference cell. Select "Number filters". Click on "Between".
    - In the empty boxes next to these new options enter the lower bound and upper bound as found in the frequency table in the Frequency table tab. This will filter the data to show values in the desired range.
    - Count the number of displayed values as you did in Project 1.
    - This is a good video to watch about the more advanced filtering options in Excel: More Advanced Filtering
5. Repeat the process outlined in Step 4 to complete the rest of the frequency table.
6. Complete the relative frequency column for the table as you did in Project 1.
7. Now create a histogram in Excel.
    - Use the frequency table to make a bar graph (like you did in Project 1)
    - A histogram should have the bars touching. To make this happen, right click on one of the bars in the bar graph and select "Format Data Series." In the option titled "options" ***change the gap width to 0%.***
    - Be sure to appropriately label axes and classes add a chart title.

Instructions for Task 2:

For this problem you will be assuming the role of the head coach for different football teams. You are trying to convince a high school senior to join your team over the other football teams.

Steps for Task 2:

1. Open the spreadsheet tab labeled USC. This sheet contains the UA Football win record against USC.
2. Create a misleading time series plot that would persuade the high school senior to join the UA football team. (Hint: What does a positive difference mean for the UA football team?)
    - A time series plot in Excel is a line chart. It is found in the same place we would find a histogram or pie chart.
    - Label the chart appropriately.
3. Create a misleading time series plot that would persuade the high school senior to join the USC football team. (Hint: What does a negative difference mean for the USC football team?) Be sure to label the chart appropriately.
4. Create a time series plot that shows the data without bias. Be sure to label the chart appropriately.