**V506 Fall 24 - R Lab 4 In-Lab Exercise**

1. Import the fastfood data set explored in class. Load the packages dplyr, ggplot2, and descriptr
2. Following the code covered in class, write a function that takes as input a vector of data (say a variable from a data frame) The function should compute the mean, standard deviation, variance, and median of such variable. The output of the function should be a data frame with 4 columns: Mean, Median, SD, and Variance.
3. Use your user written function to obtain the descriptive statistics of the variables: i) calories, ii) cholesterol, iii) protein, and iv) sugar. Use lapply and bind\_rows to visualize the output in one data frame. Add a column with the variable names to identify the output of each row.
4. Use the function ds\_summary\_stats() from descriptr to compute the descriptive statistics of the same variables. Compare the results with the output of your user written function. (Hint: apply the ds\_sumary\_stats function to the subset of the fastfood data that only contains the variables you are interested).
5. Create a box plot for the distribution of calories on the fast food items across restaturants. On the x-axis show the distribution of “calories” and on the y-axis represent the restaurant. Use appropriate labels, coloring, and other graphics best practices. Hint: where in the aesthetic mapping should you specify that the graph will vary across restaurants?
6. Create a scatter plot that shows the correlation between sugar (x-axis) and protein (y-axis) by restaurant, on the same panel. Add a specific color for the observations of each restaurant. Use appropriate labels, coloring, and other graphics best practices. Save this graph in your environment. Hint: where in the aesthetic mapping should you specify that the graph will vary across restaurants?
7. Add two lines to your previous scatterplot. A vertical line with the mean of variable sugar, and a horizontal line with the mean of variable protein. Use geom\_vline and geom\_hline. For these functions you need to specify the xintercept and yintercept as parameters, respectively.
8. Export this graph using ggsave into your folder.

There is nothing to turn in for this exercise. When you are finished, you are free to leave.