Writing Assignment #3
PSYC 2202
Confidence Intervals

Overview
In this assignment, you will compare two sets of data based on the 95%CI for each set. Then you will write up a short explanation and explanation of your analysis.

Learning Outcomes
- Correctly calculate and interpret Confidence Intervals
- Demonstrate an ability to explain statistical calculation and analysis to others

Why Do this Assignment?
- Assignment will help you understand the importance of variance to statistical analysis
- Thinking about how to explain the steps in calculating a statistic and thinking about to explain the reasoning behind an analysis will help you.
    - Write logical and clear research papers while in school
    - Help you write your capstone proposal and final project
    - Assist you in your career path, since employers will ask you to explain how you plan on doing a project, why you plan on doing it in that way, and to analyze outcomes

Specifics
Pretend you have been hired as a data scientist for an on-line store. It is a small company that is trying to minimize the number of days between receiving an order and the client receiving the order. The owners of the on-line store are clueless when it comes to statistics, which is why they have hired you. Your first task was to calculate the average number of days between ordering and receiving the order. Then you calculated the variability in days between ordering and receiving an order. As a result of your initial analysis, the owners made some changes in their internal processes. Now they want to know if those changes have reduced the number of days between ordering and receiving an order. Calculate the 95%CI of the original data and the 95%CI of the most recent 20 orders. Hand draw the CIs and compare them. What do you think? Have the changes made a difference?

Write a 1-2 paragraph explanation of:
- How you calculated the CIs (explain the steps)
- Explain to the clueless owners the importance of a 95% CI and how it can be used to compare samples
- Interpret the statistic for the owners
- Write the first draft of the paper then bring it to class for peer review
- Write final draft based on peer feedback

Data

Pre-Changes Data (original 20 orders)

Order #	Days	Order #	Days	Order #	Days	Order #	Days
1	7	6	6	11	9	16	2
2	3	7	5	12	7	17	3
3	7	8	5	13	9	18	6
4	7	9	9	14	5	19	7
5	6	10	3	15	5	20	7

Post-Changes Data (most recent 20 orders)

Order #	Days	Order #	Days	Order #	Days	Order #	Days
1	3	6	6	11	3	16	3
2	3	7	9	12	4	17	2
3	4	8	2	13	8	18	6
4	4	9	9	14	3	19	4
5	6	10	9	15	3	20	4