**Writing Assignment #2**
**PSYC 2202**
**Measures of Variability**

**Overview**
In this assignment, you will calculate the standard deviation for a set of data. Then you will write up a short explanation and explanation of your analysis.

**Learning Outcomes**
- Correctly calculate and interpret measures of variability
- 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. Now, because you are a good data scientist, you know that you need to calculate the variability in days between ordering and receiving an order. Calculate the standard deviation for the ordering data. Then write a 1-2 paragraph explanation of:
- How you calculated the standard deviation (explain the steps)
- Explain to the clueless owners what a standard deviation measures and why it is an important statistic
- Interpret the statistic for the owners (be sure to put the number in context of the mean/median you previously calculated)
- Write the first draft of the paper then bring it to class for peer review
- Write final draft based on peer feedback

**Data**

| 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 |