**Data Analysis Tasks 1 and 2**

The goal of these tasks is for us to get a better understanding of your reasoning, writing, and data analysis skills and experience. We expect these two tasks to take no more than a few hours.

Parts of this data task test advanced or niche skills that we don’t expect a candidate to have mastered as they walk onto the job.  It’s useful for us to see how you reason through these sections of the data task, even though we don’t expect perfect answers.  Give the task your best attempt, and be sure to show your work and explain your thinking.  Don’t be discouraged if you’re unsure about your response; we still want to see your application.

The enclosed data file contains a recall study in which we asked people to recall and describe an unresolved conflict from their life (see the “describe” variable). We were interested in whether people expected to feel different about being the first to apologize as a function of whether or not they received a return apology from the other person. To this end, participants were randomly presented with several scenarios within-subjects, two of which were key to answering this question: (1) “You apologized first. They did not apologize afterwards” (“feelings\_youalone” variable) and (2) “You apologized first then they apologized” (“feelings\_bothyoufirst” variable). For each scenario, they indicated how they anticipated feeling emotionally in that scenario using a sliding scale from -30 “extremely negative” to 30 “extremely positive.”

As a secondary variable, we also grouped people based on self-reported preferences into three categories of “initiator types” (always, conditional, never)—see variable “initiator\_type.” “Always initiators” are those who self-reported that they would be willing to apologize first, even if they anticipated not getting a return apology. “Never initiators” reported that they would NEVER be willing to apologize first, even if they anticipated they WOULDget a return apology. “Conditional initiators” are in between: They reported that they would be willing to apologize first, IF they expected a return apology, but not otherwise.

**TASK 1 – Answer a research question**

**Use the data to uncover:**

**(1) whether people care about getting a return apology after being the first to apologize;**

**(2) whether this varies as function of individual differences in “initiator type”; and**

**(3) whether a return apology is simply viewed as a form of forgiveness.**

**In a DOC or DOCX file, write a few paragraphs (i.e., in the format of a section of an academic paper) that:**

* Describe your conclusions.
* Justify your conclusions with your analysis. (What in your data analysis led you to those conclusions?)
* Illustrate your findings with 1-2 figures or charts. Make sure to label it/them fully (title, axes, etc.).
* Offer some possible psychological explanations for the findings.
* Can you think of any factors or contexts that might lead these results to be smaller, larger, or the opposite?
* Are there any other interesting observations you gleaned from the data (e.g., from other variables)?

**As part of this task you should turn in both an RMD file and the corresponding HTML file in which you:**

* Clean the data. Consider what variables you might use to exclude observations.
* Restructure the data as needed. (Hint: Within-subjects variables require making a “long” version of the dataset.)
* Include significance testing.
* Include all code for reproducing your analyses and figures.

**TASK 2 – Conduct additional analyses**

**Use the data to complete the tasks below. You may include these in the same RMD & HTML files created for Task 1.**

1. Produce a single bar graph that shows the average of the “feelings” variable for all six scenarios, in order of *decreasing* value. Include error bars (standard errors or confidence intervals). Label fully.
   * Describe your observations in 1-2 sentences.
2. Conduct a one way ANOVA to determine if there are differences in feelings across the six scenarios. Then perform pairwise t-tests to compare “feelings\_youalone” to the other five scenarios.
   * Describe your conclusions in 1-2 sentences.
3. Create a graph showing the proportion of people choosing each of the different options for the following variable: outcome\_binary1
   * Conduct a test to determine if the proportion differences across the answers are significantly different from one another.
4. OPTIONAL – This NLP exercise is optional, and primarily relevant to Professors Chaudhry and Kirgios.
   * Natural Language Processing (NLP) exercise: Find a way to analyze the sentiment and/or emotions present in the free form text responses in the “describe” variable. For instance, you may use packages like VADER, TextAnalyzer, or LIWC (or others). You might even use ChatGPT (in your code; not manually). Describe your observations in a few sentences.