

Instructions:

The [modified] Advanced Statistics Final Project will put you in the position of the researcher tasked with answering questions and generating hypotheses about a set of data.

Research Scenario:

You are a newly hired psychological science researcher at the Black Mesa Research Facility. You are tasked with assessing several research questions. Your boss, Dr. Newell, has had his artificial intelligence, GLaDOS, collect data from several different experiments. These data are from experiments testing the effects of cake on subject obedience between men and women, levels of mental health concerns at another research center and the resistance capital, and measures about the Enrichment Center at Aperture Science.

Dr. Newell has the following questions about the data and needs you to analyze, interpret, and report back to him. His questions are:

- 1) Does the promise of cake and a person's gender have any effect on subjects following orders during training simulations at the Enrichment Center?
 - a. Following orders is represented as obedience measured as the total percent time subjects followed commands from GLaDOS.
- 2) Are the levels of anxiety, depression, and psychopathy different at Aperture Science, Black Mesa, or the Citadel?
 - a. Anxiety is measured on a scale of 0-150 with higher scores indicating greater anxiety.
 - b. Depression is measured on a scale of 0-200 with higher scores indicating greater depression.
 - c. Psychopathy is measured on a scale of 0-10 with higher scores indicating greater psychopathy.
- 3) Does time spent in the Enrichment Center, level of GLaDOS hostility, and subject gullibility tell us anything about subjects feelings of depression when subjects find out the cake is a lie?
 - a. Time is represented in hours.
 - b. Hostility is measured on a scale of 1=docile to 10=homicidal.
 - c. Gullibility is measured on a scale of 1-15 with higher scores indicating greater gullibility.
 - d. Depression is measured on a scale of 0-100 with higher scores indicating greater depression.

Hypotheses:

From the questions asked by your boss, you can generate the following series of hypotheses

- 1) Cake and gender together have effects on percentage of obedience
- 2) Workplace environment predicts levels of anxiety, depression, and psychopathy
- 3) Enrichment center time, GLaDOS hostility, and gullibility predict depression

Report:

Your job now is to generate a report to explain to Dr. Newell any answers to his questions. There are 3 sections to the report. In Section I, you must select the appropriate SPSS analysis output files (attached to the assignment portal as Output A – Output L PDF files) and explain the steps to recreate each analysis. GLaDOS ran the appropriate analyses, but it also ran several inappropriate analyses (GLaDOS is tricky, so pay careful attention to each output file). In Section II, you must explain your reasoning for analyzing the data as you chose. In Section III, you must generate an APA formatted results section for each hypothesis tested.

For the following sections, write out your report in narrative form. Do not simply respond to the prompt in the space below or after it. You need to generate a new document with the following formatting specifications:

- I. Document formatting:
 - a. Times New Roman 12 pt font, 1” margins, double spaced.
- II. Title page:
 - a. Center the following information each on a separate line:
 - i. Name, Course Number, Final Project
- III. Document body:
 - a. Each section (SPSS Analysis, Analytical Rationale, Results) begins as a new with bolded, centered title

Section I: SPSS Analyses

- 1) For the hypothesis that cake and gender have effects on levels of obedience
 - a. Which output file contains the most appropriate analyses?
 - b. What are the series of SPSS commands to generate this output?
- 2) Which analysis file appropriately tests the hypothesis that workplace environment predicts levels of anxiety, depression, and psychopathy?
 - a. Which output file contains the most appropriate analyses?
 - b. What are the series of SPSS commands to generate this output?
- 3) Which analysis file appropriately tests the hypothesis that time in enrichment center environment, hostility of GLaDOS, and gullibility predicts level of depression?
 - a. Which output file contains the most appropriate analyses?
 - b. What are the series of SPSS commands to generate this output?

Section II: Analytical Rationale

- 1) For each hypothesis, explain your reason for your choice in analysis output
 - a. Rationale must explain why the appropriate analysis was chosen based on:
 - i. Data type and number of predictor variables
 - ii. Data type and number of outcome variables
 - iii. Goal of analysis

1. E.g., main effects, interaction effects, variance explained, controlling for type-I error

Section III: Results

- 1) For each statistical test, you must report 2 items
 - a. Report any violations of assumptions and if these pose an issue with interpretation of the results.
 - b. Report your results in APA format. All appropriate statistical output must be included to fully explain the results.