**Research Study**:

Subjects took two questionnaires. First, they filled out a survey rating different words on their meaningfulness or pleasantness. Scores were rated on a Likert scale from 1 (not meaningful, not pleasant) to 5 (very meaningful, very pleasant). These words were grouped into sets based on previous research, and the data set contains the averages for the words by set. Then they completed a meaning in life questionnaire (scores on questions were totaled).

Remember to paste your output in this document and upload your R script to blackboard to complete this assignment.

**IV X-Variables:**

* Control variables: Age, gender (1=female, 2=male)
* Experimental manipulation: priming type (1=meaningful, 2=pleasantness)
* Education words averaged (i.e. accomplish, College, Degree, Education, Grades, Graduate, School, Teacher, Undergrad, University)
* Goals words averaged (i.e. achieve, ambition, become, goals, progress, success)
* Nouns words averaged (i.e. everything, know, lot, many, mind, much, right, some, something, thing, time, what, when)
* Religion words averaged (i.e. serve, glorify)

**DV – Y-variable:**

* PIL total – scores on the purpose in life questionnaire

**Research Question:** We thought that word ratings would predict scores on the PIL questionnaire in some format. First control for demographics (step 1), then priming type (step 2), then use the average of their word ratings (step 3) to predict the PIL total (DV).

**Accuracy:**

1. Check the data for out of range scores.
   1. Include a summary showing you do/do not have out of range scores.
   2. If necessary, fix the out of range scores by making them NA.
2. Fix the gender and priming variable to be factored.
   1. Include output that shows that you factored the variable.

**Missing data:**

1. Include a table of the missing data by participant.
2. Include a table of the missing data by column after you exclude participants with too much missing data.
3. Exclude all missing data.

**Outliers:**

1. Calculate Mahalanobis distance scores for your data.
   1. What is your *df* for the cut off score?
   2. What is the cut off score?
   3. How many Mahalanobis outliers did you have?
2. Leverage
3. What is the cut off score?
4. How many leverage outliers did you have?
5. Cooks
6. What is the cut off score?
7. How many Cooks outliers did you have?
8. How many overall outlier problems did you have with two or more issues?
9. Delete all outliers with two or more problems.

**Additivity:**

1. Include a symnum table of the continuous variables.
2. Are any of the variables too highly correlated?

**Normality:**

1. Include the multivariate normality histogram.
2. Interpret the graph. Does it indicate multivariate normality?

**Linearity:**

1. Include the multivariate QQ plot.
2. Interpret the graph. Does it indicate multivariate linearity?

**Homogeneity and Homoscedasticity:**

1. Include the multivariate residuals plot.
2. Interpret the graph.
   1. Does it indicate homogeneity?
   2. Does it indicate homoscedasticity?

**Power:**

1. Calculate the number of participants you would need for this analysis with a small effect size for the FINAL step.
   1. Include a screen shot or summary of the numbers you typed into G\*Power, so we can give you partial credit if you get a different sample size than us.

**Regression test:**

1. Steps:
2. Include the model summary for each step.
3. Fill in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| Model 1 Summary | F STATISTIC | | |
| Age | b | t statistic | pr2 |
| Gender | b | t statistic | pr2 |
| Model 2 Summary | F STATISTIC | | |
| Priming type | b | t statistic | pr2 |
| Model 3 Summary | F STATISTIC | | |
| Education | b | t statistic | pr2 |
| Goals | b | t statistic | pr2 |
| Nouns | b | t statistic | pr2 |
| Religion | b | t statistic | pr2 |

**Chart:**

1. Include a regression chart for the y and y-hat values.
2. Be sure to add the line of best fit.
3. Cleaned up graph (no gray backgrounds).
4. X-axis labels are appropriate.
5. Y-axis labels are appropriate.

**Write up:**

1. Write up an analysis of what you find in this data, including all the information you answered above. Use the example in the notes for a guide. This write up should include the following for credit:
2. Result section style (APA and AMA):
3. Double space
4. Times New Roman 12 point
5. Two decimals
6. Centered, bolded Results
7. Include a brief description of the experiment, variables, and order entered into steps.
8. Data screening summary:
9. Accuracy – did you have problems? What did you do to fix it?
10. Missing data – did you have problems? What did you do to fix it?
11. Outliers –did you have problems? What did you do to fix it? (talk about all of them)
12. Assumptions:
    * 1. Additivity
      2. Normality
      3. Linearity
      4. Homogeneity/Homoscedasticity
13. Include the all F-values for each step of the model.
14. Include all the b or beta values for variables *in the step they were entered*. So, you will not have double b values for any predictor.
    1. You can put either model values or b values in a table (so you don’t have a paragraph full of numbers).
    2. Be sure each model value (*F, p, R2*) and b value (*t, p, pr2*) has the appropriate statistics with it (even if not significant).