A1: DataAnalysis

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This assignment is submitted as a Google Sheets spreadsheet.

1. Go to **this link** **(https://docs.google.com/spreadsheets/d/1pfS_QAHv0XCJFMwdAPhCDzU9QL3siaTj3naKHQ64Y1E/edit? usp=sharing)** . (Requires west.cmu.edu login.)
2. Create a personal copy by cloning the spreadsheet.
3. Follow the instructions on the **Problem** worksheet.
4. Backup your solution on both Google Drive and by downloading a local copy as an Excel sheet in case it's corrupted or lost.
5. Enable Google Drive integration from the Google Drive tab on Canvas on the left navigation menu. Allow Canvas to access your Google Drive document (use your west.cmu.edu account to log into to Google Drive).
6. Click Submit. You'll see a Google Drive tab as a submission option. Select the Google Sheets document you wish to submit and click Submit again.
7. Do not share the link to your solution with anyone else.

You <u>may</u> (but do not have to) work with a single partner in this assignment. To chose your partner, go to the People tab, then find an available A1 Partner group using search string "A1". **You <u>must</u> specify your partner in Canvas by assigning yourself and your partner to an available group <u>before starting the assignment</u>. If you fail to do this, you have to work alone to complete the assignment.**

Points	100
Submitting	a website url

Due	For	Available from	Until
Feb 1	Everyone	Jan 23 at 3pm	-

A1 Rubric

You've already rated students with this rubric. Any major changes could affect their assessment results.

Criteria	Ratings			Pts
Summary Data	**5.0 pts** **Full Credit** summary stats are correctly calculated using right formulas	**2.5 pts** **Partial Credit** some summary stats are omitted or incorrect	**0.0 pts** **No Credit** summary stats are not provided	5.0 pts
Outlier Analysis	**5.0 pts** **Full Credit** all outliers are listed for each dependent variable; outlier decision is reasonable	**2.5 pts** **Partial Credit** outlier decision is not sensible or outliers are not listed	**0.0 pts** **No Credit** outlier analysis is omitted	5.0 pts
Outlier Decision is Respected	**5.0 pts** **Full Credit** Both linear regression and hypothesis testing data analysis respects outlier decision	**2.5 pts** **Partial Credit** Either linear regression or hypothesis testing is inconsistent with outlier decision	**0.0 pts** **No Credit** Both analyses are inconsistent with hypothesis testing	5.0 pts
Correlations	**5.0 pts** **Full Credit** correlation expectation is correct and both types of correlations are correctly calculated using the right formulas	**2.5 pts** **Partial Credit** one or the other correlation is not correctly calculated, or correlation expectation is wrong	**0.0 pts** **No Credit** correlations are not provided	5.0 pts
Linear Regression Estimates Weight	**5.0 pts** **Full Credit** Intercept and Slope are estimated using the right formulas	**2.5 pts** **Partial Credit** Either Intercept or Slope estimate is wrong	**0.0 pts** **No Credit** Intercept and Slope estimates not provided	5.0 pts
Linear Regression Hypothesis Spec	**5.0 pts** **Full Credit** H0 and H1 are correct and direction of testing is right	**2.5 pts** **Partial Credit** H0 or H1 is incorrect, or direction of testing is incorrect	**0.0 pts** **No Credit** Omitted	5.0 pts
Linear Regression Stats	**5.0 pts** **Full Credit** Std. Err. of Estimate, Std. Err. of Slope, t-statistic, DOF are correctly calculated	**2.5 pts** **Partial Credit** Some stats are wrongly calculated	**0.0 pts** **No Credit** The required stats are not provided	5.0 pts
Linear Regression Significance Weight 5.00%	**5.0 pts** **Full Credit** Significance level for slope is correctly derived from confidence level, critical t-value is correct, confidence limits are correct, significance test results are correct and agree	**2.5 pts** **Partial Credit** Some of the significance results for slope are wrong, wrongly calculated	**0.0 pts** **No Credit** Significance results for slope are missing	5.0 pts

Criteria	Ratings				Pts
Linear Regression Effect Size	**5.0 pts** **Full Credit** Effect size for slope is correctly calculated and interpreted		**2.5 pts** **Partial Credit** Effect size or interpretation is wrong	**0.0 pts** **No Credit** Effect size omitted	5.0 pts
Linear Regression Confidence Statement	**5.0 pts** **Full Credit** Confidence statement is correct and consistent with confidence limits		**2.5 pts** **Partial Credit** Confidence statement is partially correct, or incomplete	**0.0 pts** **No Credit** Confidence statement is not provided	5.0 pts
Linear Regression Prediction	**5.0 pts** **Full Credit** Linear regression prediction correctly predicts the dependent variable for the given value of independent variable from the estimated intercept and slope			**2.5 pts** **Partial Credit** N/A	**0.0 pts** **No Credit** Omitted or result is wrong	5.0 pts
Linear Regression Interpretation	**5.0 pts** **Full Credit** Linear regression results interpretation makes sense		**2.5 pts** **Partial Credit** Linear regression results interpretation has logical flaws	**0.0 pts** **No Credit** Interpretation omitted	5.0 pts
Hypothesis Testing Specification	**5.0 pts** **Full Credit** H0 and H1 specs are both correct, direction of testing is correct		**2.5 pts** **Partial Credit** Specs are incomplete or partially correct, or direction of testing is wrong	**0.0 pts** **No Credit** H0 and H1 specs and direction of testing omitted	5.0 pts
Hypothesis Testing Assumptions	**5.0 pts** **Full Credit** All assumptions are checked, results are sensible		**2.5 pts** **Partial Credit** Some assumptions are unchecked	**0.0 pts** **No Credit** Assumption checks are omitted	5.0 pts
Hypothesis Testing Data Transformation Decision	**5.0 pts** **Full Credit** A data transformation decision is made and is consistent with assumption checks		**2.5 pts** **Partial Credit** A data transformation decision is made, but it's not consistent with assumption checks	**0.0 pts** **No Credit** No data transformation decision	5.0 pts
Hypothesis Testing Data	**5.0 pts** **Full Credit** Data Transformation sheet has correct data, required statistics are correctly calculated, and visualizations look ok		**2.5 pts** **Partial Credit** Data Transformation sheet has some incorrect data, or required statistics are incomplete or incorrectly calculated, or visualizations don't appear right	**0.0 pts** **No Credit** Data Transformation sheet is not completed	5.0 pts

Criteria	Ratings			Pts
Hypothesis Testing Calculations	**5.0 pts** **Full Credit** t-test type agrees with data, p-value is correctly calculated, confidence level and limits, DOF are correct -- accept if confidence limits are calculated with log-transformed data (whe log transformed data is used in testing) and/or with desired significance level rather than actual p-value	**2.5 pts** **Partial Credit** t-test type does not agree with data, or p-value is incorrectly calculated, or there is an error in confidence level and limit calculations	**0.0 pts** **No Credit** Hypothesis testing calculations are missing	5.0 pts
Hypothesis Testing Result and Effect Size	**5.0 pts** **Full Credit** H0 is correctly rejected (or not); effect size is correctly calculated and interpreted	**2.5 pts** **Partial Credit** H0 rejection decision is wrong or effect size is incorrectly calculated or interpreted	**0.0 pts** **No Credit** No results or effect size reported	5.0 pts
Hypothesis Testing Confidence Statement	**5.0 pts** **Full Credit** Confident statement is provided, and agrees with confidence limits, direction of testing, and confidence level	**2.5 pts** **Partial Credit** Confident statement is provided, but is not consistent with confidence limits, direction of testing, or confidence level	**0.0 pts** **No Credit** No confidence statement	5.0 pts
Hypothesis Testing Interpretation	**5.0 pts** **Full Credit** Results of hypothesis testing is sensibly interpreted	**2.5 pts** **Partial Credit** There are logical flaws in the interpretation	**0.0 pts** **No Credit** No interpretation	5.0 pts
			Total Points: 100.0	