



MIS 0855 Data Science (Section 002) – Fall 2015

Assignment #2 – Analyzing Data Using Tableau (10% of the Total Grade)

Due by Friday, September 30th, 11:59 PM EST

Task

Use Tableau to analyze and reveal various relationships within a data set.

Scenario

Earlier in the course you worked with a data set containing fuel economy data for 2015 model year cars. Now you're going to work with that same data set in Tableau to answer a series of questions.

Deliverable

- 1) Take a close look at the data and the data dictionary. Make sure you fully understand the data. Don't jump into the questions too fast!
- 2) Create a Tableau workbook based on the Excel data file "2015 Car Fuel Econ.xlsx."
- 3) Find answers to the eight questions below based on your analysis of the data using Tableau. Create one worksheet for each question (eight worksheets in total) with a chart or a table that demonstrates your answer.
- 4) Name each worksheet as "Question 1," "Question 2," and so on.
- 5) Without a Tableau worksheet (either a table or a chart) that matches with your answer, it will be graded as a zero, even if you fill out a correct one on the answer sheet.
- 6) Submit both your answer sheet and your Tableau file on Blackboard.
- 7) Take the hints accompanied with the questions seriously; they will help you!
- 8) Make sure you are aware of when to use SUM versus AVG.

Questions

Question 1:

Which car manufacturer has the greatest number of car models (carline)?

(Consider variations as separate models. For instance, BMW 228i and BMW 228i xDrive are different models.)

(HINT: Use Count in Measure and Sort.)

Question 2:

- a) Which car manufacturer has the highest average fuel economy for city driving?
- b) Which car manufacturer has the highest average fuel economy for highway driving?

(HINT: Use Sort.)

Question 3:

Which car model has, on average, the greatest difference between its highway fuel economy and its city fuel economy?

(HINT: Create a calculated field that subtracts city fuel economy from highway fuel economy.)

Question 4:

What is the relationship between combined fuel economy and engine power (engine displacement)? (i.e., when an engine becomes more powerful, what happens to fuel economy?)

Question 5:

- a) Which transmission type has the best average combined fuel economy?
- b) Which transmission type has the worst average combined fuel economy?

(Hint: Use the "Transmission Description" dimension.)

Question 6:

Which manufacturers produce small four-wheel drive (4WD) SUVs and small 2WD SUVs whose average engine displacement (engine power) is greater than 3.0?

(HINTS: Four manufacturers. Use a filter with the "Carline Class Desc" dimension to show small 4WD and small 2WD only! Also use a filter to hide average Engine Displacement that is less than 3.0.)

Question 7:

- a) What is the relationship between city fuel economy and highway fuel economy?
- b) What is the one car model with the lowest city and the lowest highway fuel economy?

(HINT: To find an answer, it is required to put labels with the car model names.)

Question 8:

- a) What is the relationship between engine displacement and combined CO2 emissions?

- b) Which car models get better city fuel economy than highway fuel economy? (HINT: Four models.)
- c) What can you say about their CO2 emissions of those cars in (b), compared to the rest of the models?

(HINTS: Use a calculated field to create a categorical variable to display car models (dots) in different colors. Find how we created “Impact of Beverage Price” figure in Week 3 in-class exercise. Finally, put labels with car model names on your dot.)

Submission Instruction

- 1) Submit both your completed answer sheet and your Tableau file into Blackboard by Friday, Sep. 30th, 11:59PM EST. This deadline is firm, and the instructor will not take any extraneous circumstance into consideration that occurs to you such as a PC malfunction or network outages.
- 2) Late submission is allowed, but there will be 10% penalty per each 12 hours. For example, if you submit in the morning of Oct. 2, a 30% penalty will be imposed on your submission. Therefore, your submission will be graded zero after the noon of Wed, Oct 5.