

**MIS 0855 Data Science (Section 002) – Spring 2015**  
**Assignment #2 – Analyzing Data Using Tableau**  
**Due by Wednesday, February 25<sup>th</sup>, 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 your analysis with your answer, it will be graded as a zero, even if you fill out correct one on the answer sheet.
- 6) Submit 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 sums versus averages.

**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.)

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 efficiency from highway efficiency.)

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?

Question 6:

Which manufacturers have, on average, more powerful engines (engine displacement) in their four-wheel drive small SUVs than their two-wheel drive small SUVs? (HINTS: Seven manufacturers. Use a filter to exclude other types of carlines!)

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 mileage than highway mileage? (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. Finally, put labels with car model names on your dot.)

## Submission Instruction

- Submit both your completed answer sheet and your Tableau file into Blackboard by Wednesday, Feb. 25<sup>th</sup>, 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.

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- Late submission is allowed, but there will be 10% penalty per each 12 hours. For example, if you submit in the morning of Feb. 27<sup>th</sup>, a 30% penalty is imposed on your submission. Therefore, your submission will be graded zero after the noon of Mon, Mar 2<sup>nd</sup>.