***E370, Spring 2016***

***Lab Activities week of 2/01/2015***

***Valued at 25 points***

Solve the following problems. Please follow the instructions given and show your work to obtain full credit. The data sets required for this activity can be found in Oncourse under *Resources🡺Lab Manual Data* or in Box at <https://iu.box.com/E370-Files> **in the folder Lab Manual Data Files.**

1. (13 points)Use the dataset **AdEffect**. Answer the following questions:
	1. Using your judgment, do you think a relationship exists between the number of advertisements printed in the paper per week and the number of customers who have entered the furniture store? If so, what do you think the relationship is? (2 points)
	2. Choose the best graphical representation for showing this relationship and sketch it below. Be sure to include a trendline and the corresponding equation.

 (5 points: 3 points for sketching the scatter plot, 2 points for adding the trendline equation.)

|  |
| --- |
|  |

* 1. If the store decides to print 8 advertisements in the paper next week, can you predict that how many customers will enter the store next week? (2 points)
	2. Use the columns in your dataset to calculate the covariance. Write the Excel command you use. (2 points)
	3. Assume there’s a restaurant also collect the number of advertisements printed in the paper per week and the number of customers who have entered the restaurant. The covariance is 50.65. Comparing the covariances of the two stores, can you decide which linear relationship is stronger? If yes, show your result; if no, provide a method for a valid comparison. (2 points)
1. (12 points) Use the data set **CEOHeight.** Answer the following questions.
	1. Calculate the strength of a possible linear relationship between CEO’s height and income. Interpret the result. (2 points)
	2. Estimate the appropriate linear model to describe the relationship between CEO’s height and income. (3 points)

* 1. Interpret the slope coefficient and intercept for the linear model you estimated in part (b). (4 points)
	2. Carl Cook is the CEO of Cook Medical. You observe that he is of 70 inches height. Based on this linear model, can you predict his income? (3 points)