APM 630 Regression Analysis
Project #1 – Simple Linear Regression

Data: SLR.xls

In an effort to control costs associated inventory management, a study was conducted on the relationship between sales (**X**, in billions of US dollars) and inventory levels (**Y**, in billions of US dollars), with a random sample of size 20. You are assigned to develop a simple linear regression model and report the results.

Assignment:

1. Compute the descriptive statistics for both Y and X, including (but not limited to): n, mean, median, std, min and max.
2. Show the scatterplot between Y and X. Is a linear model appropriate for the data?
3. Compute the Pearson and Spearman correlations between Y and X and test the null hypothesis of $\rho = 0$.
4. Suppose the regression model is $Y = \beta_0 + \beta_1 X + e$, fit the model to the SLR data. Show the regression equation and interpret the meaning of the two coefficients.
5. What is the R^2 of the model? What is the meaning of the R^2.
6. Are both coefficients significant? Interpret the 95% CI for the two coefficients.
7. What is the predicted value of Y if X = 250 and 300.