**DSI -06 Homework 1:**

Introduction with Statistical Learning with Applications in Python (ISLP) pg. 129

8. This question involves the use of simple linear regression on the Auto data set.

1. Use the sm.OLS() function to perform a simple linear regression with mpg as the response and horsepower as the predictor. Use the summarize() function to print the results. Comment on the output. For example:
   1. Is there a relationship between the predictor and the response?
   2. How strong is the relationship between the predictor and the response?
   3. Is the relationship between the predictor and the response positive or negative?
   4. What is the predicted mpg associated with a horsepower of 98? What are the associated 95 % confidence and prediction intervals?
2. Plot the response and the predictor in a new set of axes ax. Use the ax.axline() method or the abline() function defined in the lab to display the least squares regression line.
3. Produce some of diagnostic plots of the least squares regression fit as described in the lab. Comment on any problems you see with the fit.