HW-5

STAT 8240, Spring-2020

1. From the HW\_1.csv data fit a quantile regression model by selecting a dependent and an independent variable as you did in your HW4 **(dependent variable, Yi, I used Respondent weight (RW) and independent variable, Xi, I used Respondent height (RH).)**

Your quantile should be .25, .50 and .75. How do these regressions differ from the simple linear regression? Do you see the similarity between simple regression of previous home work with the q=.50 regression? Report whether your intercept and slope coefficients are significant or not. Show a scatter plot together with fitted line for each of these regressions. Produce a confidence interval for quantile regression and simple regression (similar to the one that we have discussed in the class). Write at least one sentence from the confidence interval.

Make a prediction comparison between linear model (you did in first problem of HW4) with this quantile regression model (comparison can be done by computing summary statistics, histogram, absolute difference between predicted values, and summary statistics of the difference between predicted values). **<- for this part, you will need to make the following comparison :**

**For multiple linear model: 1. compute predicted values 2. compute absolute difference between predicted values and observed values 3. make histogram for 1. and 2. Do the same for quantile regression when quantile is .50.**

1. From the HW\_1.csv data fit a quantile regression by considering multiple covariates with at least one interaction terms. Your quantile should be .25, .50 and .75. Report the significance of your covariates.
2. From the HW\_1.csv data fit a Poisson regression model by selecting one dependent variable and a set of independent variables. Report the significance of the model coefficients. How can you explain the slope coefficients from Poisson regression output?
3. From the HW\_1.csv data fit a cox proportional hazard model by selecting one dependent variable (which will be time to event) and a set of independent variables. Report the significance of the model coefficients. How can you explain the slope coefficients from cox regression output?