STAT 415/615 HOMEWORK RESIDUALS CHAPTER 3

Instructions: Submit to Canvas an R Markdown file and a Word file that show all script, R code, and requested output by the due date for this assignment.

**Muscle mass**. A person's muscle mass is expected to decrease with age. To explore this rela-  
tionship in women, a nutritionist randomly selected 15 women from each lO-year age group,  
beginning with age 40 and ending with age 79. The results follow; X is age, and Y is a measure  
of muscle mass.

1) Use and show R code to read in the Muscel Mass Data Excel File found posted on Canvas.

2) Use and show R code to generate a scatter plot and comment on general trends that are evident involving the dependent variable and the independent variable.

3) Use and show R code to produce a regression model. Interpret the slope of your model.

4) Use and show R code to produce all of the residuals

5) Use and show R code to produce a qqplot for the residuals. Interpret the qqplot by commenting on normality for the residuals.

6) Use and show R code to produce a graph/plot that will indicate the existence of any outliers for your residuals.

7) Now use and show R code to produce a residual plot of residuals plotted against the fitted values. Examine the residual plot and comment on the appropriateness of linearity. That is, explain why your residual plot does or does not suggest a linear relationship for the bivariate data.