Please review and complete the relevant sections (as listed below) of the attached Labs for chapter 3.   
*{Additional notes on regression topics are also included in your textbook}*

[https://hastie.su.domains/ISLR2/Labs/Rmarkdown\_Notebooks/Ch3-linreg-lab.htmlLinks to an external site.](https://hastie.su.domains/ISLR2/Labs/Rmarkdown_Notebooks/Ch3-linreg-lab.html)

You may use either the datasets we used in lab 1 or those loaded by scripts:

* ISLR2 -- this library contains many of the datasets present in the zip included with the previous lab.
* MASS -- is a library containing multiple datasets that can be loaded on demand without the need to import the data files. A pdf describing the available sets is linked below.

[https://cran.r-project.org/web/packages/MASS/MASS.pdfLinks to an external site.](https://cran.r-project.org/web/packages/MASS/MASS.pdf)

**Submission**:

NOTE: [Please submit only ONE document file. Not following instructions may result in a point reduction.]

* For each section from the exercise please complete the section by reading and implementing the code. Keep in mind, some of the grey boxes will produce errors -- this is explained in the instructions in those cases and corrections are included.
* Complete the following sections:
  + **Chapter 3**
  + Simple Linear Regression
  + Multiple Linear Regression
  + Qualitative Predictors
  + Writing Functions
* For **submission**: After reading and completing each part of the exercise please complete the following tasks:
* Idea: You've seen now how to create functions, so if you want a bit of practice try to write your own functions to generate results for multiple candidate datasets.
* **(1)** Using MASS or ISLR2**, select a dataset to implement your own version of the "Linear Regression" exercise above. Be sure to think clearly about the objectives of the exercise when selecting the datasets and features (read the descriptions of the datasets and use your plot functions to determine if the distributions are well suited to linear fits). Include*your scripts, the results, and relevant plots (at least 2: one regression and one 4 pannel of residuals) as part of the submission.***
* **(2) Select another dataset from the available libraries --OR-- if you selected a dataset with multiple features for part 1 you can use the set again to compare the results. Apply the methods of the "Multiple Linear" regression (make sure your selected dataset has at least 3 features). Provide the scripts and results for this section of the exercise and a 4 plot of the residuals (including the leverage).**
* **(3) Generate a paragraph describing the most significant finding from your personal experience with the exercise** [what do you think was most interesting? Did you discover, see in practice, or better understand any concept related to our class discussions?].  
    
  Deliverable:
* Please generate **one**.doc (Microsoft Word) or .pdf document for all comments and upload it by the listed deadline.  
  **Note**:
* As with the previous exercise be sure to keep in mind, that **you**should be submitting something **unique**and hopefully **interesting** this is a **graded practical assignment** seeking to help you **acquire**and **demonstrate**relevant skills (including coherent communication skills) for data science applications.