

HOMework 2

The following problems are from your textbook. The page number refers to the page in the 4th edition. Please label the questions by page number and question number. For questions that are not from the textbook use the label "Worksheet" and then the question number.

- p134 # 1 (in Review Exercises)
- p135 # 3
- p154 # 5
- p155 # 8
- p155 # 9
- p176 # 2
- p176 # 3
- p177 # 7
- p177 # 8

This problem below refers to the data in the excel file mlbHrData.xlsx which can be found on the assignments page on the website.

- (1) For each year compute the SD and average. Which year had the largest average? Which had the largest SD? Has there been any trend in the averages? In the SDs?
- (2) Create and print out a scatter plot with variables 2010 HRs and 2011 HRs, with the trend line and its equation.
- (3) For each year compute the correlation between home runs that year and home runs the next year. Repeat this and compute the correlation between home runs each year and 2,3,4 and 5 years in the future, where possible. What is the average correlation coefficient for predicting 3 years in the future? How many years in the future can you predict with a correlation coefficient over 0.4?
- (4) Assume the correlation coefficient between 2011 HRs and 2012 HRs would be the average of the previously computed correlation coefficients. Also assume the average and SD in 2012 will be the averages of the historical data. Create a column with a prediction for 2012 HRs based on this correlation coefficient. Whose home run production do you predict will drop the most in 2012?
- (5) Now using the same method predict 2011 data using the 2010 data. (You can use the same historical averages and correlation coefficient). Since we have the actual data we can compute the error. What is the RMS error for this prediction?
- (6) Construct a new method of predicting home runs based on previous data. Try using your method to predict the 2011 data. What is your prediction formula? What is the RMS error for the 2011 predictions using your method?