Chapter 10 Investigation Guide

Before you begin the written report,

1. In a sport of your choice, select a season prior to 1995 for your investigation. This is to make sure that all the athletes in your data set will be retired.
2. Select a category and identify the top 10 *PERFORMANCES* for a particular variable. For example, you could identify the top 10 home run hitters in Major League Baseball in 1990 or the top 10 scorers in the NBA in 1993. Here are some Web sites that you might use. To get a different season, just change the year in the url.
    - http://www.basketball-reference.com/leagues/NBA_1995_leaders.html
    - http://www.pro-football-reference.com/years/1995/leaders.htm
    - http://www.hockey-reference.com/leagues/NHL_1995_leaders.html
    - http://www.baseball-reference.com/leagues/MLB/1995-batting-leaders.shtml

To complete the written report,

1. Write an introduction that gives a brief summary of the season you have chosen, a list of the 10 athletes you will be investigating, why you chose to focus on a particular variable, the question you are trying to answer, and the source of the data you are using.
2. Record the *PERFORMANCES* for each of these 10 athletes for each year in their careers. Organize your table by "year in career" (e.g., first year, second year) rather than "season" (e.g., 1990, 1991) because the athletes probably started their careers in different seasons. Your data table should look like the following:

Year	Athlete 1	Athlete 2	⋯
1 (rookie season)			
2 (second season)			
⋮			

3. Choose one of the top 10 athletes to focus on and explain the reason for your choice. Make a timeplot for this athlete's career and describe any trends that you see. If you want to make your time plots on a computer, see Appendix B: Using Excel on the book's Website.
4. Calculate the average *PERFORMANCE* for the remaining 9 athletes in each year of their careers. For example, find the average *PERFORMANCE* for the remaining 9 athletes in year 1 of their careers (rookie seasons), their average *PERFORMANCE* in year 2 of their careers, etc. If an athlete had retired, use 0 for his *PERFORMANCE* that year. Include a table showing these averages.
5. Make a timeplot to display the average *PERFORMANCES* of the 9 remaining athletes and describe any trends that you see.
6. Make a comparative timeplot that shows the *PERFORMANCES* of your chosen athlete and the average *PERFORMANCES* of the other athletes *on the same graph*.
7. Discuss the notable similarities and differences between the timeplot for the individual athlete and the timeplot for the average of the remaining 9 athletes. Research and discuss possible explanations for the differences, such as injuries or other factors.

Rubric for Chapter 10 Investigation	4 = Complete	3 = Substantial	2 = Developing	1 = Minimal
Introduction and Data Collection	• Describes the context of the research, including why a particular season and variable were chosen • Has a clearly stated question of interest • Specifically describes how the data was collected • Includes a table with the *PERFORMANCES* for all 10 athletes for each year of their careers	• Has a question of interest, but doesn't include context of research, source of data, or raw data in a table	• Has a question of interest but there are several errors or omissions	• Has a question of interest
Individual Time plot	• Chooses one athlete as the focus of the investigation, including explanation for choice • Timeplot is well done and includes appropriate labels and scales • Trends in timeplot are clearly described	• Makes a correct time plot for a single athlete, but plot isn't well labeled or the trends are not well described	• Makes a correct time plot for a single athlete, but plot isn't well labeled and isn't well described	• Includes a timeplot for an individual athlete
Average Time plot	• Includes table showing average *PERFORMANCES* for remaining 9 athletes • Timeplot is well done and includes appropriate labels and scales • Trends in timeplot are clearly described	• Makes a correct time plot for the average *PERFORMANCE* of the remaining athletes, but table is missing, some calculations are incorrect, or plot isn't well labeled or well described	• Makes a correct time plot for the average *PERFORMANCE* of the remaining athletes, but there are several errors or omissions	• Includes a timeplot for the average *PERFORMANCE* of remaining athletes
Comparative Timeplot	• Comparative timeplot is well done and includes appropriate labels and scales • Similarities and differences are discussed • Includes plausible explanations for differences between the timeplots	• Makes a correct comparative time plot, but doesn't adequately compare plots, describe plausible explanations for differences, or have appropriate labels	• Makes a correct comparative time plot, but there are several errors or omissions	• Includes a comparative time plot for the individual athlete and remaining athletes
Overall Presentation/ Communication	• Investigation is well organized, neat and easy to read • Ideas are well communicated, including appropriate transitions between sections • Investigation is focused on answering the question of interest	• Investigation is organized and easy to read, but lacks appropriate transitions, clear communication, or a focus on the question of interest	• Investigation is somewhat organized, but has several major problems	• Organization and communication are very poor

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