Math 114QR Project # 2 – The Baseball Project
Spring 2010
This assignment will help you learn to find and analyze data from the Internet. The first part of this assignment will be done in class. You will then finish the assignment on your own, answer the questions, print your charts and graphs, and turn it in by the **due date February 26th.**

Part I: Collect your data from the web by following these steps:
1. Open **Internet Explorer** and go to the ESPN address:
http://sports.espn.go.com/mlb/teams/salaries?team=bos
2. In the upper right corner use the drop down menu (labeled "change teams") to select the team you have been assigned.
3. When the team salaries appear, highlight the two columns containing players by name and their salaries.
4. From the edit menu select copy.
5. Now open Excel and paste this data into a new Excel spreadsheet. (Note: you may need to rearrange the data to put it back into 2 columns.)
6. Return to the ESPN web page and select the two columns for teams and payrolls, then follow the same steps as before to copy and paste this data on **to the right** of your assigned team data (see page 1 sample).
7. Now save the Excel spreadsheet to your USB memory stick or to the document Folder
8. Go the launcher, select the Excel Data Files folder and open the **AllMLBPlayers2009.xls** Excel file and then save it to your USB memory stick.

Part II: Do statistics on your data.
Page 1 Printout (see page 1 sample)
1. **Using Excel functions** find the mean and median player salary for the team you were assigned. Put your results at the bottom of the column of player salaries and label your results.
2. **Using Excel functions** find the mean and median payroll for all Major league teams. Place your results at the bottom of the column of team payrolls and label your results.
*Select and print out the information with the results for 1 and 2 on **one** page. Label the printout with your name, Baseball Project and page 1.*
Page 2 Printout (see page 2 sample)
3. **Copy** your team's player salaries to a new worksheet and sort the salaries in ascending (lowest to highest) order. Now insert and column to the right of the players salary labeled **salary ($, millions**) and use Excel to convert the players salaries in dollars to salaries in millions of dollars ($250,000 = $ 0.25 Million). Format the cells in this column to 2 decimal places.
Now use Excel to determine the sum of the salaries (millions $US) for your assigned team. Label the cell to the left of this sum of salaries **Salary Sum =**.
4. Now create a table to the right of your table from 3 with three columns labeled **Salary Range (millions $), frequency, and relative frequency (%)**. Using intervals of $1 million, type in the salary ranges (0-1 … 21-23) in the salary range column. Now determine the number of players in each salary range from your team data and type this information in the frequency column. Now use Excel to calculate the relative frequency (%) of each salary range for your assigned team.
5. Now Use Excel to create a **relative** frequency histogram of player salaries for the team you were assigned. Be sure the relative frequency histogram chart is labeled properly.
*Select and print out the information with the results for 3, 4 and 5 on **one** page. Label the printout with your name, Baseball Project and page 2.*

Page 3 Printout (see page 3 sample)

6. Using Excel functions, find the mean and median player salary for **all 965** Major League Baseball (MLB) players. Put your results at the bottom of the **AllMLBPlayer2009.xls** spreadsheet and label your results. Save it to your USB memory stick or e-mail it to yourself so that you have a copy of it.

Because the **AllMLBPlayers2009.xls** sheet takes up many pages, s*elect and print out only the **LAST TEAM payroll data** in the file along with summary mean and median payroll values for all MLB players on one page*. Label this by hand with your name, Baseball Project, and page 3.

Last Pages (page 4…)

Part III. Answer the following questions on a separate sheet of paper either neatly printed or typed. **Clearly specify which question you are answering and answer the question asked.** Base your answers on the data you downloaded from the Internet, on the mean and median values you calculated, and on the relative frequency histogram your created.

1. During the 2002 baseball contract negotiations, former Boston Red Sox player and union representative Nomar Garciaparra was asked if he thought the players were being treated unfairly by the press. "Aren't they always?" he answered. "I keep seeing [quoted in the press] the $2.4 million salary average. That's not the average. "
Garciaparra understood that when people use the term "average" they often have different things in mind: sometimes they are referring to the mean, other times they are referring to the median. He thinks the press is biased in favor of baseball owners because of its choice of "average." In 2002, the mean player salary for all teams was $2,400,000; the median salary was $900,000.
Question 1a: Was the difference between the mean and median salaries for all players greater or smaller in 2002 than it is in **2009**? Back up your answer with calculations.
Question 1b: Do you agree with Garciaparra's assessment of the media back in 2002 or not? Write a brief paragraph and support your answer with quantitative arguments about the difference between mean and median salaries of all major league baseball players.

2. Is the current "average" salary for all major league baseball players (the mean player salary which you calculated Part II, #3) representative of the players on the team you were assigned? Support your answer by referring to the distribution of salaries in the histogram you created and by citing the mean and median for your team.

3. Some team owners have claimed that if team payrolls were more closely aligned, then the same wealthy teams wouldn't keep winning the division and league titles every year. For example, in the 2003 playoffs, the Oakland Athletics won the first 2 games, then the Boston Red Sox came back and won the final 3 games to win the division. After the 5th and final game of the series, the general manager of the Oakland A's was quoted in the Boston Globe as saying: "If you want to give us $50 more million I'll promise you we won't blow a 2-0 lead." The 2003 Red Sox payroll was $97 million, while the Athletics payroll was $50, so an additional $50 million would put the two teams at parity. Does the MLB team payroll data and the history of recent league and World Series winners support this contention? Explain why or why not and cite the data that backs up your answer. (Hint: if this contention were true, which teams would be winning the titles year after year?) If you need to find out who the league and series winners have been for the past few years, search the internet. You could use http://www.google.com as your search engine or visit http://sports.espn.go.com/mlb/alltime/worldseries.

4. An article, titled " Baseball salaries top-heavy," by Tom Weir and MaryJo Sylvester, appeared in October 2002 in USA TODAY. The authors stated that: "A few players with big salaries are grabbing an ever-increasing share of the payroll, pushing more players toward the low end of the scale. That means baseball's middle class — the journeymen, midlevel players and rising stars who make up the 60% of players in the center of the payroll — are taking home less of the payroll pie each year. This season [2002] they accounted for 35% of the total dollars paid out. In 1988 they made 41% of the money. One of baseball's biggest salary trends mirrors that of the American worker: a shrinking middle class."

a) Calculate the percentage of your team's current **payroll** that is earned by players in the team's **two highest salary intervals**. (Hint: You will need the sum of the salaries for your team to do this.). Show all work.

b) Calculate the percentage of your team's current **payroll** that is earned by players with salaries **less than the team median**. (Hint: You will again need the sum of the salaries for your team to do this.). Show all work.

c) Answer the following question in complete sentences with reference to your calculations above: Does your team's current data support or contradict the trend noted in the USA TODAY article? If you wish to read the full article, you can find it at:

http://asp.usatoday.com/sports/baseball/salaries/2002-10-16-analysis_x.htm