



Homework #1

Major League Sports Problem

Background Information

Professional teams in all major sports in the U.S. and Canada operate as franchises within a league. The four major leagues include Major League Baseball (MLB), the National Basketball Association (NBA), National Football League (NFL), and National Hockey League (NHL).



The four major leagues are distinguished from other leagues in terms of their business size and popularity, as measured by annual revenue and average attendance. For example, in the 2014-2015 season, the 30 NBA teams generated combined revenue of \$5.18 billion.

Problem Statement

In this assignment, students will analyze the four major sports leagues by revenue and attendance for the years 2005 through 2015.

Instructions

IMPORTANT: Complete the steps below in the order they are given. Completing the steps out of order may complicate the assignment or result in an incorrect result.

1. Download and extract the provided Data Files ZIP file. It contains the following file for use in this assignment:
 - a. **revenue.csv** – Information on revenue of the four major sports leagues for the years 2005 through 2015 [1]–[4].

Column Name	Type	Description
Year	Number	Year of the data.
MLB Revenue	Number	Revenue generated by Major League Baseball teams.
NBA Revenue	Number	Revenue generated by National Basketball Association teams.
NFL Revenue	Number	Revenue generated by National Football League teams.
NHL Revenue	Number	Revenue generated by National Hockey League teams.
Total Revenue	Number	Total revenue of the four major sports leagues.



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- b. **attendance.csv** – Information on attendance of the four major sports leagues for the years 2005 through 2015 [5]–[8].

Column Name	Type	Description
Year	Number	Year of the data.
MLB Attendance	Number	Total attendance of all Major League Baseball teams.
NBA Attendance	Number	Total attendance of all National Basketball Association teams.
NFL Attendance	Number	Total attendance of all National Football League teams.
NHL Attendance	Number	Total attendance of all National Hockey League teams.
Total Attendance	Number	Total attendance of the four major sports leagues.

2. Create a new Microsoft Excel workbook named **lastname_firstname_hw1_mlsp.xlsx**.
3. We must adjust the sheets in our workbook.
 - a. Rename *Sheet1* to *Revenue*.
 - b. Add a new sheet named *Attendance*.
 - c. Add a new sheet named *Analysis Questions*.
4. Import the following items into the workbook:
 - a. **revenue.csv** file – Import starting in cell **A3** of the *Revenue* sheet. The file is comma-delimited. Its first row contains headers.
 - b. **attendance.csv** file – Import starting in cell **A3** of the *Attendance* sheet. The file is comma-delimited. Its first row contains headers.
5. We wish to apply formatting to the *Revenue* sheet.
 - a. We must setup a table to store data on revenue.
 - i. If a table does not already exist in cells **A3** through **F14**, create one using a style of your choice. The table has headers and will overlap external data ranges. If prompted, convert the selection to a table and remove all external connections.
 - ii. If a table already exists in cells **A3** through **F14**, format the table using a style of your choice other than the default table style.
 - b. We need to add additional columns to store rank and percentage data.
 - i. Insert two new table columns to the right of existing column **F**.
 - c. For the table, turn on the **Total Row** option.
 - d. Enter text in the cells as indicated below:



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- i. **A1**: Major League Sports Revenue - *Firstname Lastname*
 - ii. **G3**: Total Revenue Rank
 - iii. **H3**: NFL Revenue Percentage
 - e. Merge-and-center cells **A1** through **H1**.
 - f. Set the font size to 16-point for cell **A1**.
6. We need to perform calculations to analyze the *Revenue* sheet data.
- a. In column **H**, calculate the percentage of total revenue that came from the NFL using the formula:
$$\frac{[NFL\ Revenue]}{[Total\ Revenue]}$$
 - b. In column **G**, use the `RANK.EQ()` function to rank each year by its total revenue.
 - c. We would like to summarize the revenue data.
 - i. In the total row, individually sum columns **B** through **F**.
 - ii. In the total row, do not display any statistics in columns **G** and **H**.
7. We must apply additional formatting to the *Revenue* sheet.
- a. Add borders to the cells as indicated below:
 - i. **F3** through **F15**: left – thick solid line
 - ii. **G3** through **G15**: left – thin solid line
 - b. Format the cells as indicated below:
 - i. **B4** through **F15**: currency with no decimal places
 - ii. **H4** through **H14**: percentage with 1 decimal place
 - c. AutoFit the widths of columns **A** through **H**.
 - d. Apply conditional formatting to the NFL revenue percentage in cells **H4** through **H14**.
 - i. If the percentage was less than 38% (< 0.38), change the cell fill color to red and the text color to white.
 - ii. If the percentage was at least 40% (≥ 0.40), change the fill color to green and the text color to white.
8. We also wish to apply formatting to the *Attendance* sheet.
- a. We must setup a table to store data on attendance.
 - i. If a table does not already exist in cells **A3** through **F14**, create one using a style of your choice. The table has headers and will overlap



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- external data ranges. If prompted, convert the selection to a table and remove all external connections.
- ii. If a table already exists in cells **A3** through **F14**, format the table using a style of your choice other than the default table style.
 - b. We need to add an additional column to store percentage data.
 - i. Insert one new table column to the right of column **F**.
 - c. Enter text in the cells as indicated below:
 - i. **A1**: Major League Sports Attendance
 - ii. **G3**: MLB Attendance Percentage
 - d. Merge (but do not center) cells **A1** through **G1**.
 - e. Apply the *Title* cell style to cell **A1**.
9. On the *Attendance* sheet, we wish to calculate major league sports attendance statistics.
- a. In column **G**, calculate the percentage of total attendance from MLB using the formula:
$$\frac{[MLB\ Attendance]}{[Total\ Attendance]}$$
10. We must apply additional formatting to the *Attendance* sheet.
- a. Format the cells as indicated below:
 - i. **B4** through **F14**: number with no decimal places, use 1000 separator
 - ii. **G4** through **G14**: percentage with 2 decimal places
 - b. AutoFit the widths of columns **A** through **G**.
11. We need to set up the *Analysis Questions* sheet so that it can store responses to the analysis questions.
- a. Enter text in the cells as indicated below:
 - i. **A1**: Question Number
 - ii. **B1**: Response
 - b. Bold the contents of row **1**.
 - c. AutoFit the width of column **A**. Set the width of column **B** to 100 (8.39").
 - d. Set the height for rows **2** through **5** to 110 (1.53").
 - e. Change the vertical alignment setting for columns **A** and **B** so that the text is displayed at the top of each row.



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- f. Turn on text wrapping for column **B**.
12. Starting in row **2** of the *Analysis Questions* sheet, answer four of the five analysis questions below. Respond to one question per row.
- a. Despite a drop-off in growth of revenue in 2012, there has been a steady increase in total revenue of the four major sports leagues. What do you think is the main reason behind this?
 - b. NHL revenue dropped 22% in the 2012-2013 season. Why might revenue have fallen so sharply?
 - c. More people attended MLB games than NFL, NBA, and NHL games combined during the period 2005 to 2015. Why does MLB have so much more attendance than the other leagues?
 - d. The Super Bowl is famous for having the most expensive commercial airtime on television. Why is Super Bowl airtime so costly?
 - e. The four major sports leagues each have revenue that is many times larger than the other professional sports leagues in the U.S. and Canada [9]. Why is this the case?

Grading Rubric

This assignment is worth 50 points. It will be graded by your instructor using this rubric, with partial credit awarded as appropriate:

Steps 3a-c	1.5 points total	Steps 7d(i)-(ii)	4 points total
Step 4	5 points	Steps 8a-e	3 points total
Steps 5a-f	3.5 points total	Step 9a	4 points total
Step 6a	4 points total	Steps 10a-b	1.5 points total
Step 6b	5 points total	Steps 11a-f	3 points total
Steps 6c(i)-(ii)	3.5 points total	Steps 12a-e (pick 4 of 5)	2.5 points each
Steps 7a-c	2 points total		

The analysis questions in Steps 12a-e will be evaluated using this rubric:

Standard	Meets Requirements (1.25 points)	Does Not Meet Requirements (0 points)
Answer is reasonable.	Answer addresses the question prompt and is factually correct or a reasonable interpretation of available data.	Answer does not address the question prompt, is factually incorrect, or is an unreasonable interpretation of available data.
Answer is supported.	Logical rationale is provided to support the given answer.	Logical rationale is not provided to support the given answer.



Acknowledgments

The logos in the introduction appear courtesy of Major League Baseball [10], the National Basketball Association [11], National Football League [12], and National Hockey League [13].

References

- [1] "MLB league revenue 2001-2015," *Statista*. Available: <https://www.statista.com/statistics/193466/total-league-revenue-of-the-mlb-since-2005/>. Accessed: Dec. 19, 2016.
- [2] "NBA league revenue 2001-2015," *Statista*. Available: <https://www.statista.com/statistics/193467/total-league-revenue-of-the-nba-since-2005/>. Accessed: Dec. 19, 2016.
- [3] "NFL league revenue 2001-2015," *Statista*. Available: <https://www.statista.com/statistics/193457/total-league-revenue-of-the-nfl-since-2005/>. Accessed: Dec. 19, 2016.
- [4] "NHL league revenue 2005-2016," *Statista*. Available: <https://www.statista.com/statistics/193468/total-league-revenue-of-the-nhl-since-2006/>. Accessed: Dec. 19, 2016.
- [5] "MLB Attendance Report," *ESPN.com*. Available: [//www.espn.com/mlb/attendance](http://www.espn.com/mlb/attendance). Accessed: Dec. 19, 2016.
- [6] "NBA Attendance Report," *ESPN.com*. Available: [//www.espn.com/nba/attendance](http://www.espn.com/nba/attendance). Accessed: Dec. 19, 2016.
- [7] "NFL Attendance Report," *ESPN.com*. Available: [//www.espn.com/nfl/attendance](http://www.espn.com/nfl/attendance). Accessed: Dec. 19, 2016.
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- [9] "List of professional sports leagues by revenue," *Wikipedia*, Dec. 16, 2016. Available: https://en.wikipedia.org/w/index.php?title=List_of_professional_sports_leagues_by_revenue&oldid=755162530.
- [10] *Major League Baseball Logo*. 2016. Available: https://en.wikipedia.org/w/index.php?title=File:Major_League_Baseball.svg&oldid=748241041.
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- [13] *National Hockey League Logo*. 2016. Available: https://en.wikipedia.org/w/index.php?title=File:05_NHL_Shield.svg&oldid=709220251.