

UNIVERSITY OF ALABAMA
Department of Physics and Astronomy
PH 491/591 Fall 2022

Instructions:

1. This should be turned in individually, but you may work together
2. Nominal due date: 6 Sept 2022

Assignment: Data Visualization

Attached to the assignment on BlackBoard, you will find an excel file with data. The data contains Major League Baseball (MLB) payroll and winning percentage data for the 2019 and 2021 seasons (we will ignore the COVID-shortened 2020 season). A common assertion is that teams can be more successful simply by spending more money and hiring the best players.ⁱ Does the data support this argument?ⁱⁱ Looking at these two sample years, come up with a visualization that compares payroll and winning percentage, tailoring the visualization to the argument you think best explains the data.

Some things you might consider are: looking at deviations or variances from the mean rather than raw data, analyzing the data in quintile cohorts, highlighting the points corresponding to playoff teams and winners at each tier, or comparing payroll changes from 2019 to 2021 with changes in winning percentage. The use of additional data relevant to your case is perfectly fine, but you must cite your sources.

If you are unfamiliar with baseball, that is fine! The point is: you have data, you want to see what it tells you, and you want to effectively convey that message to your readers. Additional data, such as MLB playoff results, are extraordinarily easy to find online.

Your completed assignment should consist of (a) the visualizations (minimum 2) you use to make your point, (b) a *caption* for each of approximately 50 words at most, (c) at most two paragraphs explaining in brief your methodology and argument, and (d) citations for any additional resources. The point is to tell the story visually, not in words. You may work together on this assignment, but everyone should submit their own.

Table 1: *Data Visualization Grading Rubric*

Item (points)	Unacceptable (0-5)	Developing (6-7)	Proficient (8-9)	Exemplary (10)
Choice of metrics points x 2	Not identified or not appropriate	Appropriately identified but not realistic	Appropriately identified, specific, and realistic	Meet proficient criteria, clearly stated, meaningful
Quality of visualization points x 3	Not identified or not appropriate	Appropriately identified but not realistic	Appropriately identified, specific, and realistic	Meet proficient criteria, clearly stated, meaningful
Technical aspects points x 3	Not identified or missing key details	Too vague or lacking in but not realistic	Clear and further goals, all key steps present	Multiple strategies and outcomes planned for
Captions and explanations points x 2	Not present or not appropriate	Present but minimal	Specific ideas and tailored to project	Selected proficiently to meet diverse criteria

ⁱWhile MLB has no real salary cap, it does have a “luxury tax” or “competitive balance tax” in place that taxes teams progressively once their payroll exceeds a specific threshold. For a team that is financially well-off, it is debatable whether the additional tax is an effective deterrent.

ⁱⁱClearly we should look over many years, but we wanted to keep the amount of data manageable, since the goal is to focus on visualization here.