STATS 100: Progress Report

1. **Introduction**
   1. What is your research question about:
      1. How can we maximize the number of expected runs a baseball team can produce based within an inning?
   2. Why is it important?
      1. I think this question is important because we want to maximize the number of runs given an opposing pitcher and the batting lineup that our team has. Each baseball team uses a subset of players every game to use in their batting order, but it would be best to find out which lineup combination for a given team will maximize their number of expected runs.
   3. What methods and data will you use to answer it?
   4. How will you validate your work? I.e. how can you show that you’ve done a good job (that your method is better than other methods or is quantifying something real).
2. **Literature Review**
   1. The Elegance of Markov Chains in Baseball: <https://medium.com/sports-analytics/the-elegance-of-markov-chains-in-baseball-f0e8e02e7ac4>
      1. Summarize the Main Point of the Paper:
      2. Discuss its relevance to your project:
      3. Explain how you will be extending or applying the paper in the project, or how your work is different from the paper:
   2. A Markov Model for Baseball with Applications: <https://dc.uwm.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1969&context=etd>
      1. Summarize the Main Point of the Paper:
      2. Discuss its relevance to your project:
      3. Explain how you will be extending or applying the paper in the project, or how your work is different from the paper:
3. Exploratory Data Analysis

Exploratory data analysis (EDA) involves playing around with you data and getting to know it better. You

should include at least one plot (i.e. a nice graphic) [2 points] that demonstrates that you have done

some exploratory analysis. Be sure to discuss the plot and what conclusions you have drawn from it.

1. Your Progress

Summarize the progress you have been on your project. You should include at least one plot (i.e. a nice

graphic) [2 points] that demonstrates that you made some progress towards answering your research

question (this plot should be different from the plot you used in the EDA section). Discuss the plot, the

conclusions you have drawn from it, and why it represents progress on your project. [2 points]

1. Next Steps

Discuss your vision for what your finished project will look like, and what steps you will take to get there.

[2 points] Discuss any challenges you anticipate, and how you will surmount them. [2 points]

1. Appendix

The appendix does NOT count for the page-count. Your appendix should contain all data and code (as

long as you are not using any private data; obviously private data should not be included). The best way

to link to data and code is through a link to a github repo, but any method is fine as long as your work is

reproducible.