# Lab 2.1 – Computing the league-wide ERA and slugging percentage

In this lab, we continue our previous work aimed at comparing the MLB leagues based on the status of the DH rules. Here we will create visualizations and write a summary of our findings, with all your work added to the previous repository.

Search engines have become an integral part of programming and in this lab, you will be asked to practice this skill be researching some tasks not covered in the lectures.

**Tasks.**

1. We are continuing work from **Lab 1.2** and your Python code should be added to the notebook/repo from that assignment.
2. Use plotnine to create an annotated plot like the one shown below. Be sure to add reference lines and annotations (use Google to figure out how this is done in plotnine).
3. Create an analogous plot comparing the league-wide slugging percentages, again adding appropriate reference lines and annotations.
4. Write each visualization to a PNG file stored in an img folder in the repository. (again consult Google).
5. Create a WORD document containing both visualizations, along with a paragraph or two summarizing your findings. Add this document to the root folder of your repository.

**Comparing league-wide ERA**



**Deliverables.** Submit completed copy of this document that includes

1. A screenshot of the head of each final table, and

A screenshot of a computer

Description automatically generated

A graph of different colored lines

Description automatically generated

A screenshot of a computer

Description automatically generated

A graph of a graph showing the difference between the same graph and the same graph

Description automatically generated with medium confidence

After the DH rule was introduced, both league-wide ERA and slugging percentage (SLG) were slightly increased. The first graph (ERA vs Year) shows that the DH rule made it hard for pitchers to prevent runs from scoring.

The second graph (SLG vs Year) shows that the DH rule makes batters more offensive and easier to score points.

1. The link to your data repository.

<https://github.com/ShoSato-047/DH_comparisons>