Hitter Success Rates Web Application

Group Name: Script Junkies  
Group Members: Matthew Isip, Nate Kidd, Maria Hall

**App Overview:**

The goal of our app is to display success rates of batters as they face different scenarios in Baseball. The user will be able to enter different types of pitches, as well as what the outcome of those pitches were, balls, strikes, hits, or outs, and be returned the probability of success for the hitter for different types of pitches. This would be able to be used by both batters and pitchers to get an idea of what the best pitch for them to be swinging at would be, or what the best pitch for a pitcher would be, preferably the one with the lowest hitter success rate. Currently, the model has been trained to data throughout the 2024 MLB season, and taking the 80th percentile of both hitters and pitchers to help get rid of outliers.

The goal is for the project to be hosted on Github Pages, using HTML, CSS, and JS for the frontend. The backend would consist of Python and the libraries, pybaseball to pull the baseball data, pandas to work with the data and handle the statistics, and flask to communicate our HTTP requests between the front and backend.

**App Features:**

The frontend of the application will provide multiple different views for various features. Starting with the start screen, a user will be prompted to login using Firebase’s built in Authentication, once a user is logged in, they will then be able to select what pitch type the batter faces, as well as the result from that pitch. As the user adds pitches, the success percentages for the various pitches will update, displaying to the user what the best probable pitch to throw would be, all while keeping track of the current sequence and count. This sequence data would then be stored onto Firebase, allowing for the user to be able to revisit the same sequence at a later time if needed.

**Team Responsibilities:**

**Matthew:** Databases / Firebase Integration, HTTP Connection, responsible for pushing commits to Github.

**Nathan:** User Authentication Screen, responsible for orchestrating team meetings.

**Maria:** UI/UX Design, responsible for staying on track with the deadline.