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### Mini Baseball Savant

My final project for CPSC 408 was to create a mini version of Major League Baseball's Baseball Savant. Baseball Savant is a dashboard application that is built on all ball tracking data across all MLB games since 2018. Within the dashboard you can search for players and view all of their ball flight, performance, and projected performance metrics in one easy to view place. We can view how a player has performed over a period of time, against certain teams, against certain pitches, and ect. While Baseball Savant is a dynamic dashboard and certainly has its benefits there are some functionalities that are lacking. Within Baseball Savant you can only search for accumulated statistics and you're unable to view direct player comparisons. If I wanted to compare Luis Castillo to Gerrit Cole I would need to open up two separate windows on my computer, search them, and then compare them. That is the main deficiency of Baseball Savant in my eyes. To combat this I took inspiration from Baseball Savant and made my own command line version where both player comparison and matchup viewing is possible.

In Mini Baseball Savant the user can run any of the following commands: printing a record, creating a record, updating a record, deleting a record, pitcher comparison, hitter comparison, team pitcher performance, pitcher vs hitter matchup, and pitcher game performance. Each of these queries will process the required performance statistics needed to answer the question at hand. Mini Baseball Savant is built on a MySQL database of all the 2022 MLB Season play by play data. The user runs the application through the command line and will be

prompted with a list of the previously mentioned commands above to run and execute. Depending on the command the user will be prompted a series of questions to finish the execution of the application. Whether it is a player's name, id, team name, or a specific table, the user will be able to answer and control what they want to do in the database application. The output will then be printed to the command line. The Mini Baseball Savant MySQL database consists of six tables each containing their own entities. The *pitchers* table strictly contains data on pitchers, the *hitters* data contains data on hitters, the *teams* table has data on the teams, same goes for the *games* data as well. However the other two tables *pitches* and *batted\_ball\_events* each specialize in their own versions of play by play data. *Pitches* only has data pertaining to pitch flight metrics and counts while the *batted\_ball\_events* data is all about batted ball results and ball flight. By running the queries in Mini Baseball Savant we can accumulate the raw play by play data to measure performance metrics. Through these queries we are easily able to compare pitchers and hitters on the same baselines and scale.

Overall Mini Baseball Savant was fairly successful in its implementation. The ability to directly compare variances in player performance and easily access matchup data proves to benefit users compared to Baseball Savant. The user interface could be improved on a stylistic and functional level but it leaves room to grow. Overall Mini Baseball Savant achieved its goal of improving the accessibility of play by play data and streamlining direct player comparisons and matchups.

