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DMBS Finale Project Write Up

For our final project, we built a web application that displays baseball metrics for the Saint Joseph's baseball team. The overarching goal of the web app is to give valuable data metrics such as average velocity and strike % to players and staff in order to monitor progress.

First we outlined the key requirements needed for this project. There had to be a main page for selecting a player and the date range for all of the basic metrics requested by the baseball manager. This initial home page provides data for types of pitches, pitch count, usage rate, and many more. Along with this, we have a scatter plot to display the types of pitches (FourSeamFastBall, ChangeUp, Curveball, and Fastball ect.) along with interchangeable data on the x and y axis. There is a drop down that lets you select between release speed, horizontal/vertical break, and spin rate. The final and best part about this page is that it allows the user to download a PDF file of the scatter plot and the chart. This functionality makes it seamless for the baseball staff to file the data and use it for reporting. Our main page provides the raw numbers for each player for the given dates and a visual representation of that data along with an optional PDF download. This became our main page because it highlights the most valuable data for the players and staff.

On our navigation bar at the top, we also have the progression tab that shows graphs for average effective velocity and strike percentages. This part is also connected to the SQL database and has a drop down to select which player you would like to view. The graphs are automatically updated to reflect which player you chose. The data will be automatically uploaded from the baseball team's end when this reaches final deployment. Another thing to note is that we may have noncurrent or scarce data due to the baseball team not being in season.

Our next page is the upload page. This page processes csv files that are not yet uploaded to the database and adds it to existing data. This can be useful when you have specific data on file that you want to measure or if it is data that was not taken from a game day. The data that will be uploaded will be predominantly from game days; this feature could be useful when attempting to measure practice data.

Lastly, we have the ranking page, which shows our group's contributions to the project and the percentage of each member's contributions.

We utilized javascript in our code as a back-end for our html and css style/structure. This proved useful to tackle error handling and the technical

implementations of how to shape the data. Specifically we chose to use the node.js runtime environment paired with the express.js framework for our back-end architecture. This follows the 3-tier client/server application model; the server acts as the middle man between the client and the database.

Another thing worth mentioning is the absence of the DELETE functionality in our web application. It was not considered in the final product because it would be useless due to the full control of being able to pick the dates you want to measure from. Due to the nature of how the data is recorded, all of the data is clumped into one table. The way the data is processed makes it so all the columns and rows are in one table, preventing us from making joins. Our data is obtained from the program that records the baseball data and it is not possible for us to change the format of it.

This web application is a finalized test-build for presentation and the final project. While there is more to add before we fully deploy it, this web app demonstrates key features and functionalities that the Saint Joseph's baseball team will have at their disposal. Between the charts, line graphs, scatter plot, and upload/download functions, this project has a lot to offer.