Milestone 2

Racket Sciences

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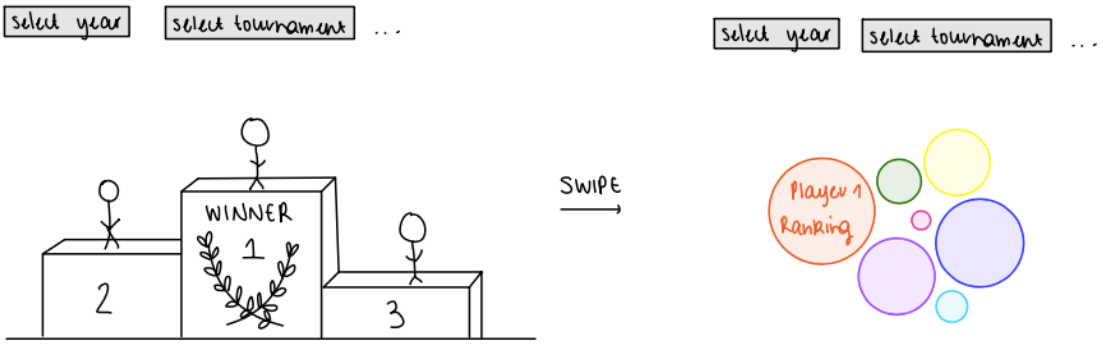
1 Website architecture overview

Our main concept for the website is to allow users to instantly identify the GOAT (Greatest of All Time) in their chosen category-GOAT Overall, GOAT Server, GOAT by Surface, GOAT in Doubles, GOAT of Specific Tournaments, and GOAT at Net Play. This feature will serve as the central focus of the site.

Each category will have a dedicated page. At the top of each page, users will immediately see a podium showcasing the top three all-time players. Users will also be able to select a specific year to view the top 3 players for that season. Depending on the category, additional filters and features will be available—such as surface type (clay, hard, or grass), tournament-specific stats, or even playing style (e.g., net play).
By swiping left from the podium, users will access a dynamic packed bubble chart displaying the top 30 players evolving over the years. Each bubble represents a player and contains their name and key statistics related to the selected category. The size of each bubble reflects the player's ranking—the larger the bubble, the higher their position. This chart is animated across a timeline located below it, allowing users to observe how rankings evolve over time. The animation can be paused on a specific year by selecting it, enabling users to focus on the rankings of that season. Below the charts, a brief description will explain how the statistics were calculated (as shown in Figure 1).



(a) Podium of top 3 players

(b) Bubble chart visualization

Figure 1: Sketch of charts for all categories

In the GOAT Overall section, we've included a third visualization: a spider chart. This

allows users to explore a selected group of top players (30–50) and see in which categories each player performs best (as shown in Figure 2).

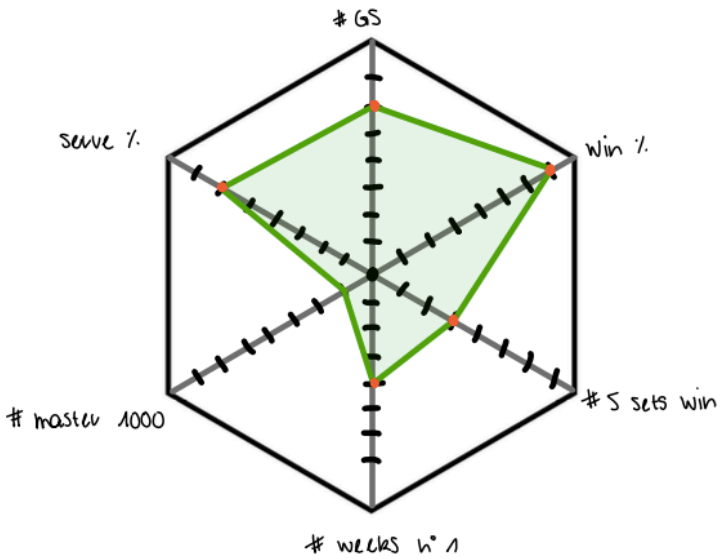


Figure 2: Spider chart of top players performance

To make the website more engaging, we plan to incorporate user interactive features. One such feature is a voting system, where users can vote for who they believe is the true GOAT. Users will be able to choose a category-All Players (mixed), Men or Women-and either select a player from a predefined list or search for a specific tennis player using a search bar. If the player is found in our database, the vote will be counted. The voting results will be displayed through a dynamic bar chart that updates in real time (as shown in Figure 3).

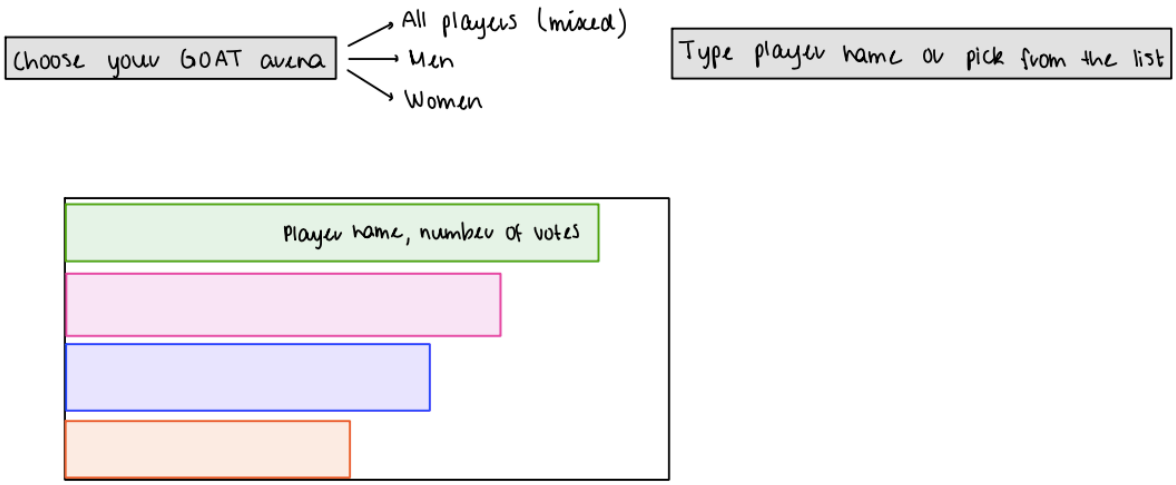
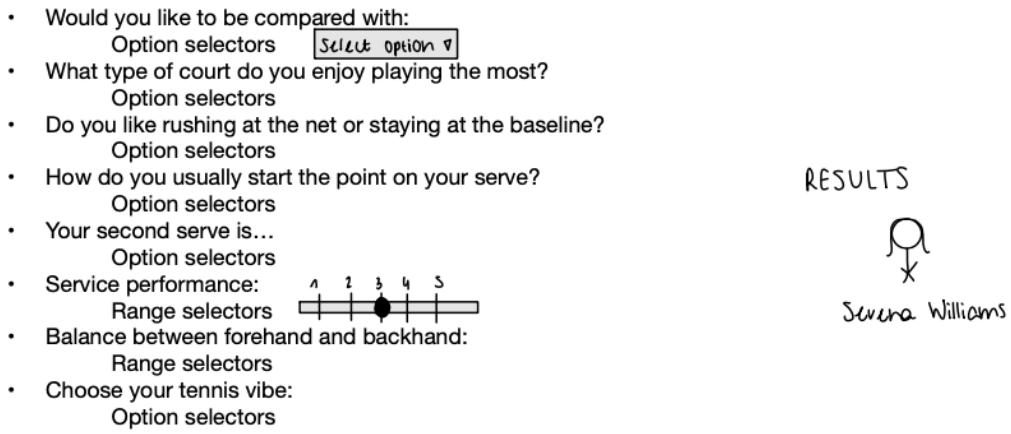


Figure 3: Dynamic race bar chart of votes

2 Additional Idea

An additional feature we'd like to implement, if time allows and it is feasible, is a user-to-player comparison tool. Users would rate themselves and their tennis playing style by answering multiple questions (a mini-quiz). Based on their response, the system would match them with the professional player whose style most closely matches theirs (as shown in Figure 4).



(a) Example questions (b) Result generated

Figure 4: Mini quiz

Another idea we would like to implement, if time permits, is to add a 'fun' feature: when swiping left to change the chart, a drag net will sweep across the screen to transition to the next chart.

3 Tools and Lectures

To implement the various visualizations planned for our project, we will mainly use D3.js, which provides the flexibility needed for building interactive and dynamic charts such as podiums, bubble charts, spider charts, and dynamic bar charts. The following lectures will be useful: Mark, Channel, Interaction and More interaction in D3, which help us figure out how to use things like size, color, interactive elements and D3.

4 Website

A first version of the site is disponible under Racket Sciences with the basic skeleton of our visualizations.