



Process Book

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Overview and Motivation

For our project, we wanted to base it off of something that both of us know and enjoy, and Rocket League was the perfect choice. We enjoy watching, playing, and talking about Rocket League, so we decided to make a visualizing website that shows off statistics related to it. Rocket League is a video game that pits players against each other in soccer matches that are either 1v1, 2v2, 3v3, or 4v4. However, Rocket League isn't just simply soccer, each player controls a car that must drive around and hit the ball in a variety of ways to score on the opponent. Using different methods like boost (allows players to go faster), aerials (jumping off the ground, using boost, to hit the ball while it is airborne), and many other methods, the objective of the game is to score goals on your opponent. In Rocket League, there is a "ranked" game mode that allows competitive players to rank themselves on a ladder of a variety of ranks. These ranks include (from worst players to best players) Bronze, Silver, Gold, Platinum, Diamond, Champion, Grand Champion, and Supersonic Legend. Each of these ranks further divide into divisions (1-4), and players can improve their divisions and ranks by winning games (and derank by losing games). This website is not only something that we will enjoy using, as we plan on including statistics that are fun to see and important to know, but also will give people outside of this class a resource to visualize their own Rocket League statistics.

Related Work

As discussed further later, the site: <https://sunsiu.github.io/poke-data/> was good inspiration as to how we will go about formatting our site and how we want to implement interactivity for the user. The statistics provided on ballchasing.com were also big inspirations, as the detail they go into for the visualizations is on a similar level to what we wanted to achieve when choosing a project on Rocket League.

Questions

What questions are you trying to answer? How did these questions evolve over the course of the project? What new questions did you consider in the course of your analysis?

When starting this project, we wanted to answer many different questions a Rocket league player would have while playing:

- What is the average player's boost use during the game?
- What is the average player's goals/assists/saves per game?
- I just played a great game, what is my (insert statistic here) from that game?
- What was an individual's positioning during a match?
- How do each of my games compare to each other?
- What is (insert player here)'s statistics?
- What is the average player's boost use in (insert rank here)?
- And many more.

Because Rocket League is such a dynamic game with such a high skill-ceiling, improvement is one of the main driving forces in playing the game. We hope to aid players in seeing their statistics, how they compare to other players/the average population, and much more.

Data

Our data was taken by the website ballchasing.com, which provides an API with the ability to upload Rocket League replays and retrieve game statistics from them.

Data Acquisition

Using Python, we were able to make a API scraper that connects to their API to pull game statistics in the form of JSON. The API allows you to grab any number of replay information with basic data about the game (IDs, match data, players, etc.), but does not immediately give all of the detailed statistics about the game. To do so, you have to loop through each of the IDs retrieved from the previous request and send a request to get one game's data from that ID, in which you are given a JSON of the data. From that data, we were able to save each of the game data responses in a JSON file that will allow loading from and saving to with ease.

Exploratory Data Analysis

Looking through previous projects, we were inspired by the “Pokedata” project, where they split their visualizations into two main categories: individual Pokemon statistics, and a generalization of all pokemon through their types. Each of these sections had some form of interactivity as well as statistics, which gave us a good starting point on how we wanted to begin sketching our project. We wanted to incorporate how their site is laid out and how it separates the statistics into two main sections, each with unique data/filtering.

Design Evolution

Initially, we had a wide variety of UI sketches that covered a variety of different statistics about a game of Rocket League: boost statistics, position statistics, core statistics (goals/assists/saves/shots), and more that would show unique parts of the game in different ways. We eventually combined a few sketches/ideas we had into our current prototype and will adjust it as we go.

Prototype 1

When we were thinking of all of the different visualizations we could create, there were a huge number of different varieties we can display to the user. These visualizations could include information about individual games, players, or population statistics, where each of these would include graphs/charts about stats in the game like boost per minute (BPM), speed statistics, positioning statistics, and much more. However, many of the ideas we came up with would not be very interactive for the user, and would most likely just list statistics in simple bar or line charts. There were ideas of interactivity that we wanted to include, however. We wanted to give the user the ability to find themselves (if replays exist) in some sort of list and give them the ability to click on themselves to show a variety of statistics about them. Along with statistics, there would be some way to display each of the games they have played, and when clicked/found, it would pull up the individual game statistics for that game. This would allow any player to see their stats and each of the games they have played to help them track how they have played/progressed. As well as this, we wanted to have a way to view global population statistics (all recorded games we have) to visualize the population statistics as a whole. For each of the groups previously mentioned (players/population), we wanted to have a way to filter to see statistics for different groups, ranks, etc, as well as detailed statistics about them through charts/graphs/etc. With these in mind, we landed on having two different pages: one to handle individual players and their

games, and one that dealt with population statistics, with the rough layout being shown in the sketch above.

Implementation

For our implementation, we wanted to have two separate pages: players, and population. For the players page, we wanted to have a variety of visualizations that incorporate different statistics of a Rocket League game to allow the user to see in-depth statistics. These visualizations have many forms, including the table shown below.

Select Player: RainbowPineapple d' ▾

Filter

Game	W/L	Goals	Assists	Saves
10/03/22 05:54 PM	W	3	1	1
09/23/22 04:27 PM	W	3	0	2
09/23/22 04:20 PM	L	1	0	1
09/16/22 11:57 AM	L	2	0	2
09/06/22 05:06 PM	L	1	0	0
09/06/22 05:06 PM	L	1	0	0
09/05/22 04:00 PM	L	2	0	2
08/31/22 08:20 PM	W	1	1	1
08/25/22 01:50 PM	W	3	1	0
04/20/22 11:48 PM	L	1	0	0
04/12/22 11:29 PM	W	1	0	1
03/28/22 12:48 AM	L	0	0	0
03/28/22 12:42 AM	W	2	0	0
03/28/22 12:35 AM	L	2	3	2
03/28/22 12:25 AM	W	6	1	0
03/26/22 04:57 PM	W	1	0	0
12/17/21 02:15 PM	L	2	0	1

This table has four main functions: selecting player names, filtering the game data, sorting the table, and viewing every game that player has appeared in. This table allows the user to scroll through all of the

available games, and if they want to see one game more in-depth, they can click on the game to view more information.

When a game is clicked, many different visualizations appear, including:

The game scoreboard -

Player	Score	Goals	Assists	Saves	Shots	Demos
EvanTheGamer507	238	1	0	1	2	1
swrv	220	0	0	2	1	0

Player	Score	Goals	Assists	Saves	Shots	Demos
RainbowPineapple d'	587	3	1	1	6	0
riskybiscuitz99	401	1	2	1	1	1

Bar/line charts to display game statistics -

Evaluation

[Insert answer as we develop new prototypes]