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Final Lab – Comparison of Apex Legends Statistics

Thesis Statement/Introduction

One of my favorite hobbies (That I have spent nearly 1000 hours on and spent $500+ dollars on despite it being free to play) is playing the hit video game Apex Legends. Apex Legends is a First-Person Shooter Battle Royale, think of it as a video game adaptation of the novel “The Hunger Games” but without the story and only the combat situations. 20 teams of 3 (so 60 players total) must choose 3 characters among the roaster of 22 playable characters (Each with unique abilities and attributes) and skydive into a designated fighting arena (Typically 2km x 2km) and must fight for the best gear and weapons in order to combat with their opponents and be the last team standing. In my 1000 hours of gameplay in Apex Legends, most of it was put into playing the competitive mode of the game, where you are given a ranking and play against similar ranked individuals. My team usually consist of 3 other individuals (1 tends to cycle out when another isn’t available since max team limit is only 3 players), these individuals being my close friends Julian, Harjas, and Tony. Together we most likely have a combined total of nearly 500-600 hours played together, so almost 50% of my total play time I have spent with them. This fact alone almost ALWAYS brings up this argument, typically spearheaded from my teammate Julian, with it being who is the best Apex Player in our group across all measured statistics?

With that said, my client Julian suggested an idea, to actually compare our stats once and for all so he can officially claim he is the “Apex Predator” of the gaming group. In order to answer my client’s question (who always valiantly defends his claim of being the best within our friend group), we need to look at the individual statistics of each player. Lucky for us, Respawn Entertainment (The developer behind Apex Legends) provides basic individual player statistics for us in the main menu. These statistics provide key performance indicators, such as total wins, damage against enemies, headshots (A measure of accuracy), and kills, for each of the 22 playable characters. However, while providing these statistics for individual users, it does NOT consolidate them against each other and thus we’re not allowed to truly compare our statistics nor does it elaborate/derive information from said statistics either, it's just the raw data presented to each individual and that is it. After collecting all individual data points for each individual character for the 4 members in the competitive gaming group, I will help my client (Julian) defend his claim that he is the best player in his competitive Apex Legends team across all measured statistics as well as the best top 3 main played characters (Main played character meaning the character that has the most games won across all 22 characters) compared to the other 3 members in the team.

Data Description

As mentioned previously, Respawn Entertainment provides basic statistics within the main menus of Apex Legends. All the data that was collected for this evaluation was pulled from the game itself, within each individual character’s customization screen. Sounds simple, but in reality, collecting the individual data points was rather difficult because the only way Apex Legends tracks this data is through the use of their banner cards. In Apex Legends, each of the 22 playable characters has a banner card, and on that card you can place up to 3 badges and 3 stat trackers (More information on stat trackers is available at this site: <https://apexlegends.fandom.com/wiki/Stat_Trhttps://apexlegends.fandom.com/wiki/Stat_Trackeracker)> . What I did to collect the data was screen the other 3 individuals in this study (Julian, Tony, and Harjas) and collect their individual character statistics by going through each character’s stat trackers and recording the following 5 values: Kills, Total Damage, Headshots, Wins, and Total Games Played. The values were recorded on a excel sheet and later transferred as a csv file over to Python for further analysis. Once transferred, I derived 5 more additional values as points of comparison that aren’t calculated in Apex Legends stat tracker menus, with those 5 new values being: Damage per Kill (Total Damage divided by Kills), Damage per Game (Total Damage divided by Total Games Played), Win Rate (Wins divided by Total Games Played), Win Percentage (The sum of all characters wins divided by Total Games Played and multiplied by 100 to show as a percentage), and Accuracy (Headshots divided by Total Games Played).

Below is the data I collected during the screening for each player.

Julian’s Results

Graphical user interface, application, table

Description automatically generated

Table

Description automatically generatedDiljit’s Results

Tony’s Results

Table

Description automatically generated with medium confidence

Harjas’s Results

Table

Description automatically generated

Data Processing/Analysis

Chart, bar chart

Description automatically generatedAfter collecting and turning the data into their own respective dataframes, I was finally able to cross examine their values and determine whether Julian reigns supreme across all stats as well as having the best main character in terms of stats observed. While the client asked for a comparison of the average (Meaning all 22 characters statistics combined) as well as a main character comparison, I realized that it would do justice to compare each individual character as well just to show what statistics went in to the average comparison. This led to the creation of the following bar charts below, each decrypting a measure of comparison for all 22 playable characters across all members of the competitive team. For the first 3 bar charts, outliers make the smaller values difficult to recognizable, so I created a zoomed in variant of them as well.

Chart, bar chart

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The individual characters comparison already provides a lot of insight to the comparison of player statistics and allows you to see star characters for each player. For example, looking at the outliers for Kills, Total Damage, and Wins already shows you which characters an individual mains at a quick glance. I can go on a deep dive already and derive a lot of information and knowledge from these graphs alone, but I rather focus my analysis on the average values, so that is what I will present next. Below is the consolidation of an individual’s statistics across all 22 playable characters

Table

Description automatically generated

The graphs below are bar charts made from the averages of each player.

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Above, as you can see, is a comparison of the average stats that hold significant value in terms of skill (Total games played and win percentage didn’t derive information pertaining to one’s abilities but rather were just general statistics). Here, you can see that Julian leads in 5 of the 7 categories measured (Avg Kills, Avg Damage, Avg Wins, Avg Damage per Game, and Avg Accuracy per Game), Diljit leads in 1 category (Avg Win Rate), Tony leads in 1 (Avg Damage per Kill), and Harjas doesn’t lead in any of the measured categories.

The next step after the average analysis was to determine our main characters. Again, ones main character equates to the character they have the most wins with. In order to derive that information, rather than just pulling it based off an observation of the “All Character Comparisons” bar charts, I decided to make a pie chart and observe what total percentage of wins an individuals characters hold. This led to the creations of the graphs that will be show below.

**Julian’s Mains Information**

Chart, pie chart

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Graphical user interface

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**Diljit’s Mains Information**

Chart, pie chart

Description automatically generated

A picture containing graphical user interface

Description automatically generated

Chart, histogram

Description automatically generated

**Tony’s Mains Information**

Chart, pie chart

Description automatically generated

A picture containing diagram

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Description automatically generated

**Harjas’s Mains Information**

Chart, pie chart

Description automatically generated

A picture containing diagram

Description automatically generatedA picture containing chart

Description automatically generated

All the graphs above allowed me to easily process and see who the top winning characters were for an individual, deriving the data above lead to the creation of the following table.

Table

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After having this new dataframe, I was able to pick apart values and compare them among each other. The following bar charts are in similar fashion of the total character comparison, but this time we only decrypt the top 3 mains for an easier comparison.

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Now that we have an easy to view comparison of all the mains, we can view the following information. We’ll start by comparing the first mains statistics and then go down to the third mains statistics. Starting with the first mains, here are the following 1st ranking mains for each individual: Julian’s 1st main is Pathfinder, Diljit’s 1st main is also Pathfinder, Tony’s 1st main is Octane, and Harjas’s 1st main is Lifeline. Of the main statistics, Julian leads in 5 of the categories (Kills, Total Damage, Wins, Damage per Game, and Accuracy), Tony leads 2 of the categories (Win Rate and Damage per Kill), and Diljit’s and Harjas’s mains don’t contend for any of the leading stats. Next up is the 2nd ranking mains, with the 2nd ranked mains for each individual being: Julian’s 2nd main is Bloodhound, Diljit’s 2nd main is Octane, Tony’s 2nd main is Horizon, and Harjas’s 2nd main is Bangalore. Of the main statistics, Julian’s 2nd main only leads in 3 of the 7 measured statistics (Kills, Damage, and Wins), Diljit leads in 1 (Win Rate), Tony leads in 3 statistics (Damage per Kill, Damage per Game, and Accuracy), and Harjas 2nd main doesn’t contend for any lead position. Lastly, looking at the 3rd main of every individual, here are the following 3rd mains per individual: Julian’s 3rd main is Lifeline, Diljit’s 3rd main is Crypto, Tony’s 3rd main is Revenant, and Harjas’s 3rd main is Pathfinder. Of the 7 statistics, Julian leads in 4 (Kills, Damage, Wins, and Accuracy), Diljit leads in 1 (Damage per Kill), Tony leads in 2 (Win rate and Damage per Game), and unfortunately, Harjas again doesn’t lead in any category with his 3rd main.

**Additional Graphs**

Below I will include additional graphs to show a comparison of the stats in scatterplot format. It explains the same information as the bar charts but is just an additional way to view said information.

Scatterplots for the following individuals and statistics.

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And here is a similar format but for the top mains per individual in regression line format.

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Chart, line chart, scatter chart

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Results

Now that we have all this information, we can finally conclude the knowledge that we can take away from these observations. Starting with the comparison of average stats, while leading in a majority of them, Julian is NOT the best across all measured statistics. However, for the 2 statistics he lagged behind in (Average Damage per Character and Average Win Rate), he was not far behind the leader for that category, typically lagging behind on a 15 to 25% margin. When it comes to the comparison of everybody’s top 3 main character, Julian also falls short on some of the respective categories, but like the overall comparison, he’s the statistical leader for a majority of the stats measured. For his first main he excels at 5 of the 7 categories measured, and for the two categories he isn’t the stat leader he lags behind at a 10 to 20% margin. For his second main, he ties with Tony in containing the highest statistics (Julian took 3 leads as well did Tony, with Diljit taking 1 lead as previously mentioned). Julian again leads most kills, damage, and wins however, which are very positive indicators at one’s abilities. Tony 2nd main achieves success in stats that compare two statistics against each other (Ex. Damage per Game was the result of comparing total damage to total games played), and Diljit led in having the highest win rate, meaning more wins with less games played. For the 3rd main, Julian takes the top spot for 4 of the 7 measured statistics, again leading in Kills, Damage, and Wins, but also leading in Accuracy as well, meaning that a majority of the stats in the 3rd main category were in Julian’s favor, with him lagging behind on an incredibly small margin (Compared to the other margins) at a rate of 5 to 10% behind.

Summary/Conclusions

After examining all the data, information, and knowledge above, we can conclude that our clients claim (Thesis) of him (Julian) being the best player in his competitive Apex Legends team across all measured statistics as well as the best top 3 main played characters compared to the other 3 members in the team, is false. He does NOT lead in every defined category. However, my client Julian can rest easy, knowing that he does in fact lead in a majority of the measured statistics. While his specific bold claim of being the greatest player across all statistics isn’t true, what is true is that on average, if we were to ask about a specific category of statistics/measurement, there is a very high chance that Julian will indeed outrank one of the other 3 members in his competitive Apex Legends team.