

Statistics Project: Music League

Music League:

Music League is an app for you and your friends to share songs and compete. Each week, there is a prompt and players must submit a song that they think best matches the prompt. After everybody has submitted, each player listens to every song and votes. For my league with my friends, there are nine players. Each player gets 7 upvotes and one downvote that can be distributed however they like, except, a player cannot give more than four votes for any song.

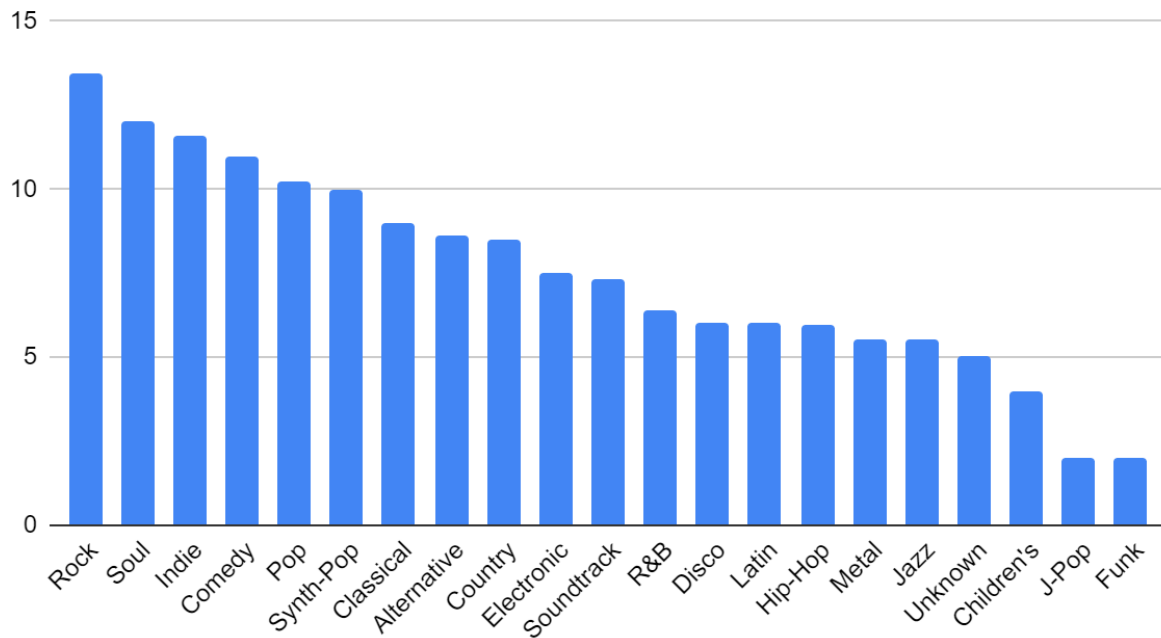
Analysis of the Music League Part 1: General Statistics

For this project, I wanted to examine the music league I have with my friends. I was curious about a few things. First, I was curious if newer or older music performed better. I was also curious if any genre performed better than the others. Second, I was curious how my taste aligned with my friends and if it was more compatible with anyone in particular.

To begin, I inputted all the data into a spreadsheet. The round name and number were recorded. Within each round, all the song names, artists, genre, release year, and who submitted the song, and each persons' votes were recorded. Then, the total sum for each song was calculated.

To find if any genre was most popular, I found the average scores per genre. I believed that there would be a handful of genres that dominated the game, namely pop and rock. While pop and rock did perform very well, some other genres dominate the top as well. For example, Indie, with 7 submissions and an average point total of 11.57, performed very well.

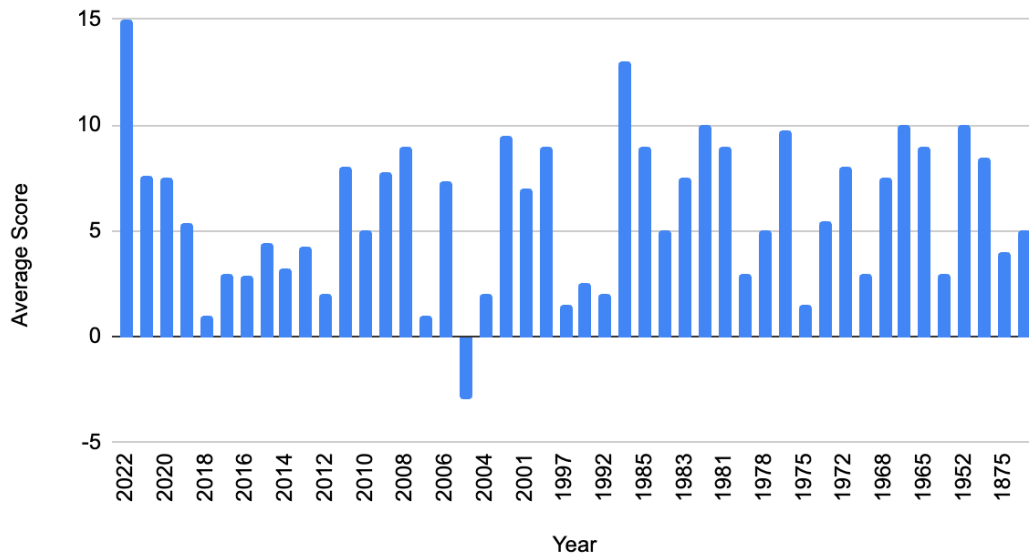
Average Number of Votes by Genre



Note that some genres only had one or two submissions, and therefore may be more skewed. For example, Pop and Rock both had the most submissions, with pop having 30 and rock having 21. Soul and Comedy both only had one submission over all rounds, but the songs submitted performed very well, so the results are skewed towards them. It would be possible to remove genres with less than a certain number of votes, for example five. This means that the averages would be more representative of how a genre performed in general, but I wanted to include all genres for a broader look. Some interesting data from the genres was that rock, pop, and hip-hop were the most common genres with 30, 21, and 15 songs submitted respectively. However, unlike rock and pop, hip-hop was one of the worse performing genres with an average point total of 5.93.

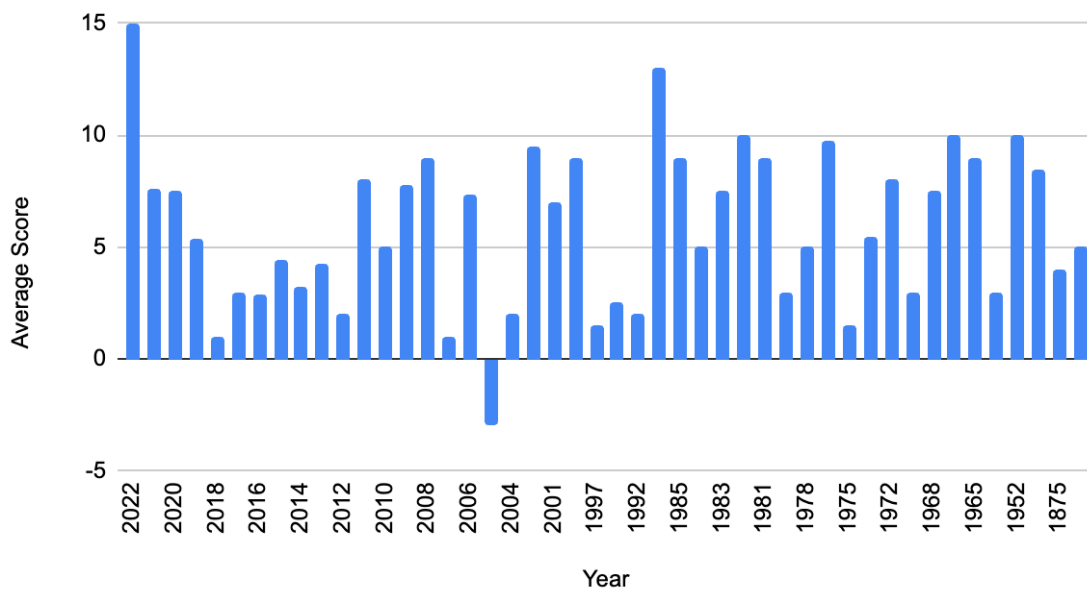
Another statistic I was interested to look into was how year was correlated to average score. I hypothesized that newer songs would perform better, since there may be a greater chance that the group was familiar with the song already. However, this hypothesis did not hold true.

Average Score per Each Year



This graph shows the average score per decade. While the 2020s were tied for the best performing decade, the 2010s were tied for the worst performing decade. The 1980s and the 1960s did very well, which after seeing the group's preference towards rock, is not very surprising. The 1950s also did very well, but only one song was submitted for the 1950s. The most popular decades were the 2010s, 2000s, and the 1970s. Below is a graph of the average score per individual year.

Average Score per Each Year



From this data, it seems that 1980s rock tends to perform the best in the league.

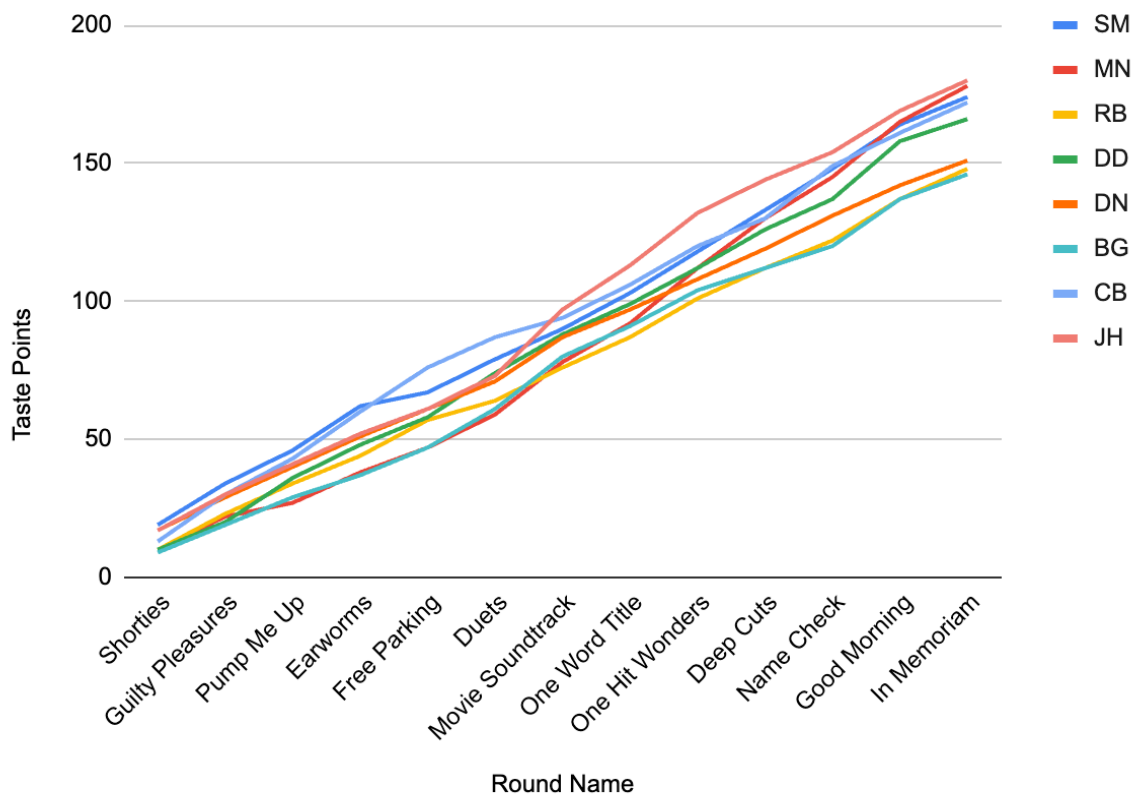
Analysis of the Music League Part 2: Friendship Statistics

The last questions I had were how does my music taste compare to my friends? To find out, I devised a new point system called Taste Points to test compatibility in music. Taste Points follow the table below:

Name	Scenario	Taste Points Awarded
Perfect Match	Both users put the same exact score on the song. (In the scenario that one scores a song greater than 3 points, and the other scores it at 3 points, we still call this a perfect match)	3
One Away	The difference between the users points is 1. However, both must be greater than or equal to 0. (This is to prevent a case where one feels neutral and the other feels either positive or negative.	2
One Likes One Dislikes	One person has put a positive point score and the other has put a negative point score.	-1
One Loves, One Submitted	One person submitted the song and the other person loves the song (loves = 3 points). This is the highest scoring scenario.	4

Using this to score, the total taste points between me and each of my friends was calculated per round.

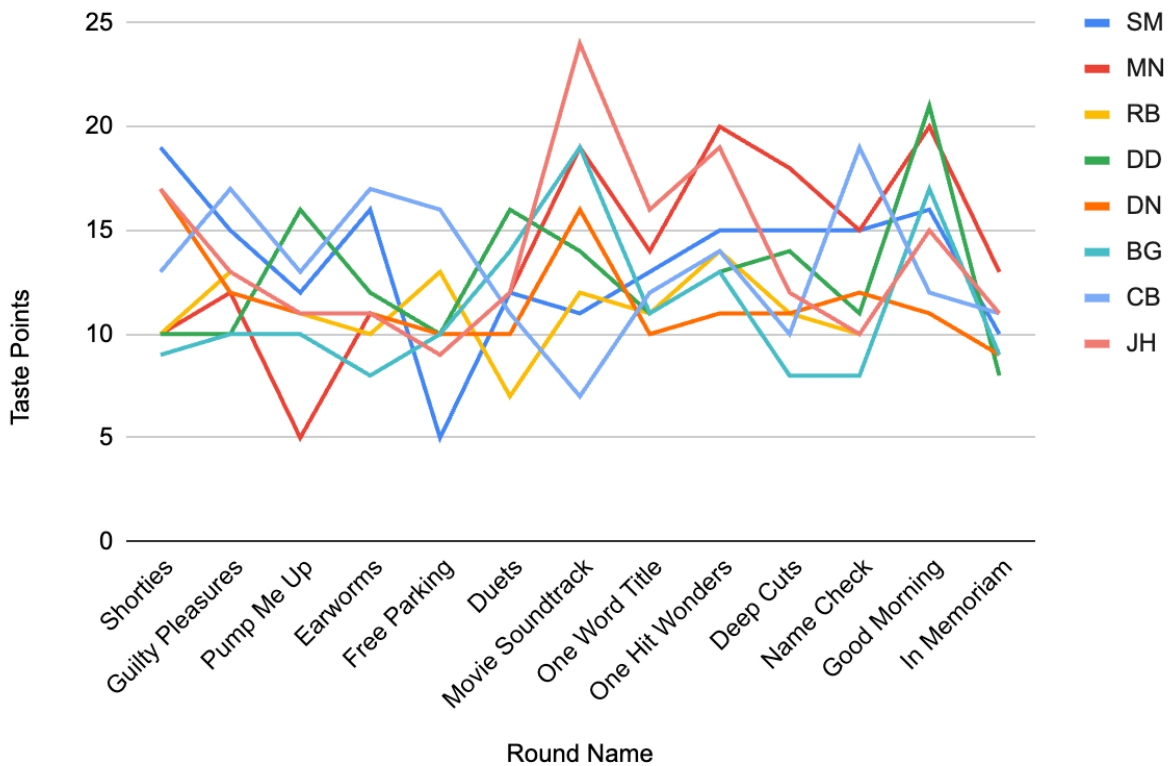
Accumulated Points



This graph shows the accumulated points over each round. This graph shows that the people I score best with are Jack (JH), Mihir (MN), and Sandeepan (SM) with 180, 178, and 174 respectively. What is interesting to see from this graph, is that Jack and I did not start off in such solidarity and our tastes started to align only seven rounds in.

I was also curious if there were any rounds in particular that my tastes did not align with my friends. Examining the graph of the individual rounds, it is possible to answer that question.

Individual Rounds



The fewer taste points accumulated on average, the more my tastes differed. The greater the taste points, the more my taste was similar. The rounds with the least taste points on average were 'In Memoriam' and 'Free Parking.' The rounds with the most taste points on average were 'Movie Soundtrack' and 'Good Morning.'

Conclusions:

Overall, the point of this Music League has not been to prove how in sync I am with my friends, or what kinds of songs are most popular amongst us. The point has been to have fun and share music that we love with each other. However, I find the statistics behind the game very interesting, and they reveal a bit about my friend group and our music compatibility. This does not show who I should be best friends with, but maybe who I should take a roadtrip with. I highly recommend playing this game with your friends, and running a statistical analysis of your own.

Problem Set:

1. What other statistical analysis would you want to run on this data? Also, assuming you had perfect information (whatever information about all the songs that you wanted), what other trends would you look for?
2. Create your own system for 'Taste Points.' How would you determine who's tastes were the most in sync?
3. Create a music league for your friends. Run one round and find what genres or years performed the best. Was there any trend in what your friends submitted?
4. Using my system for 'Taste Points,' find your compatibility with your friends. Anything surprise you?
5. Using your system for 'Taste Points,' find your compatibility with your friends. Was there a difference in the results between your system and my system?

Figures:

Average Point Totals by Genre

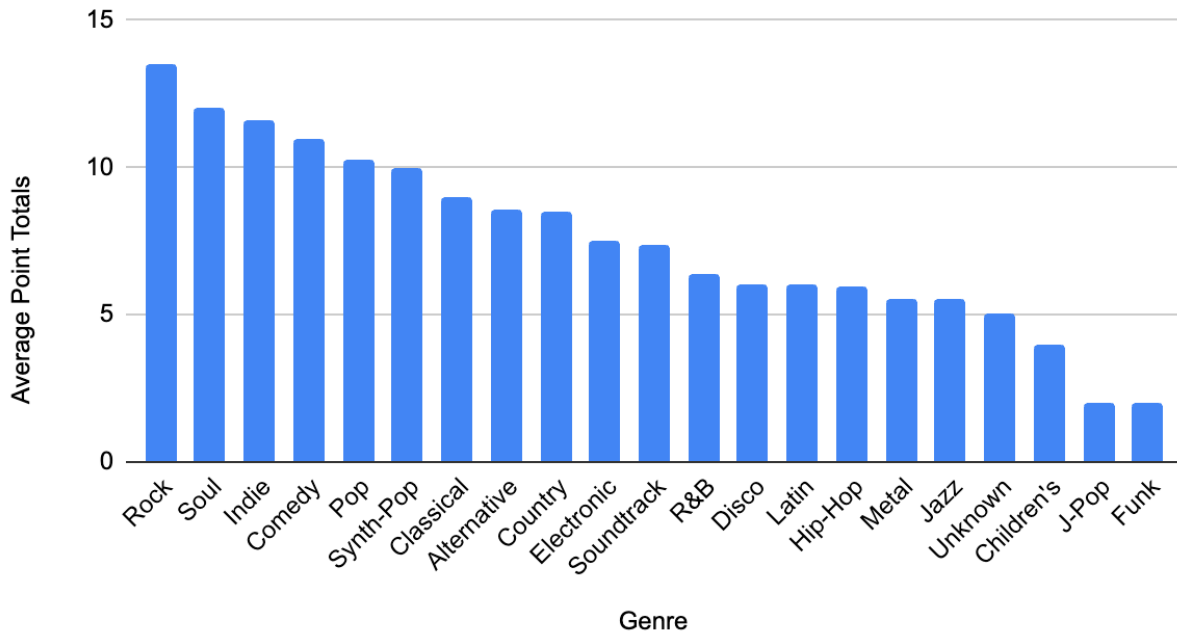


Figure 1: Bar Chart of the average points by genre.

Average Score per Decade

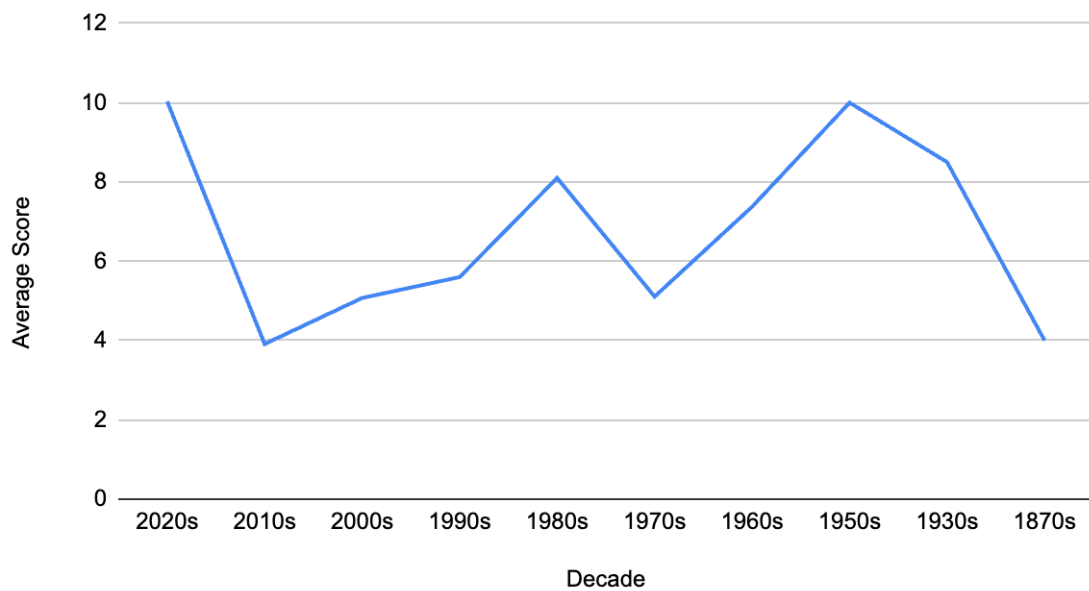


Figure 2: Chart of the average score by decade.

Average Score per Each Year

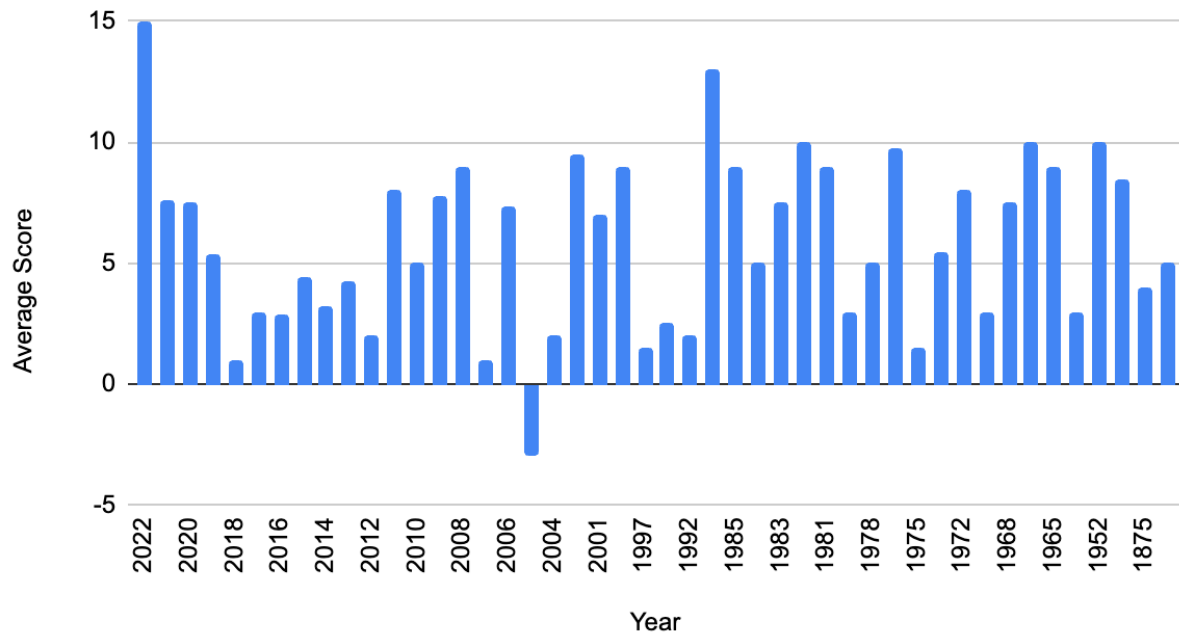


Figure 3: The average score by each year.

Accumulated Points

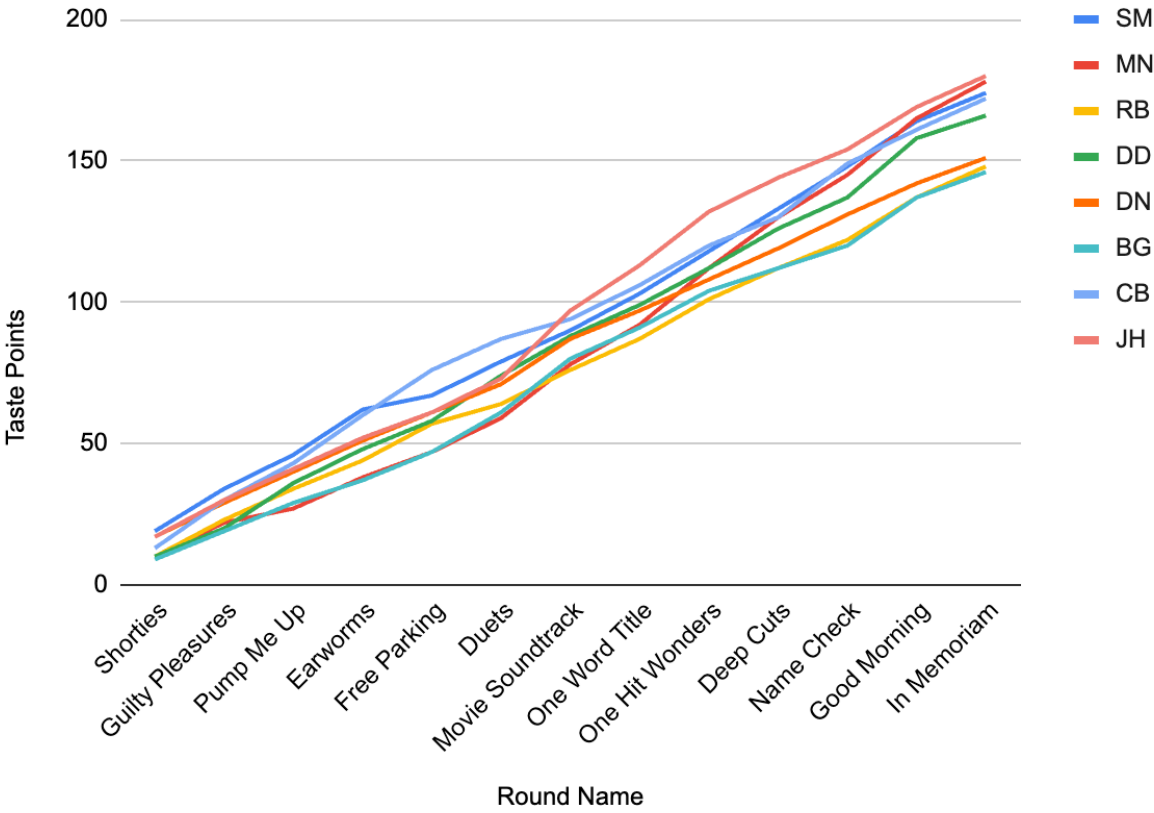


Figure 4: Total taste points per round

Individual Rounds

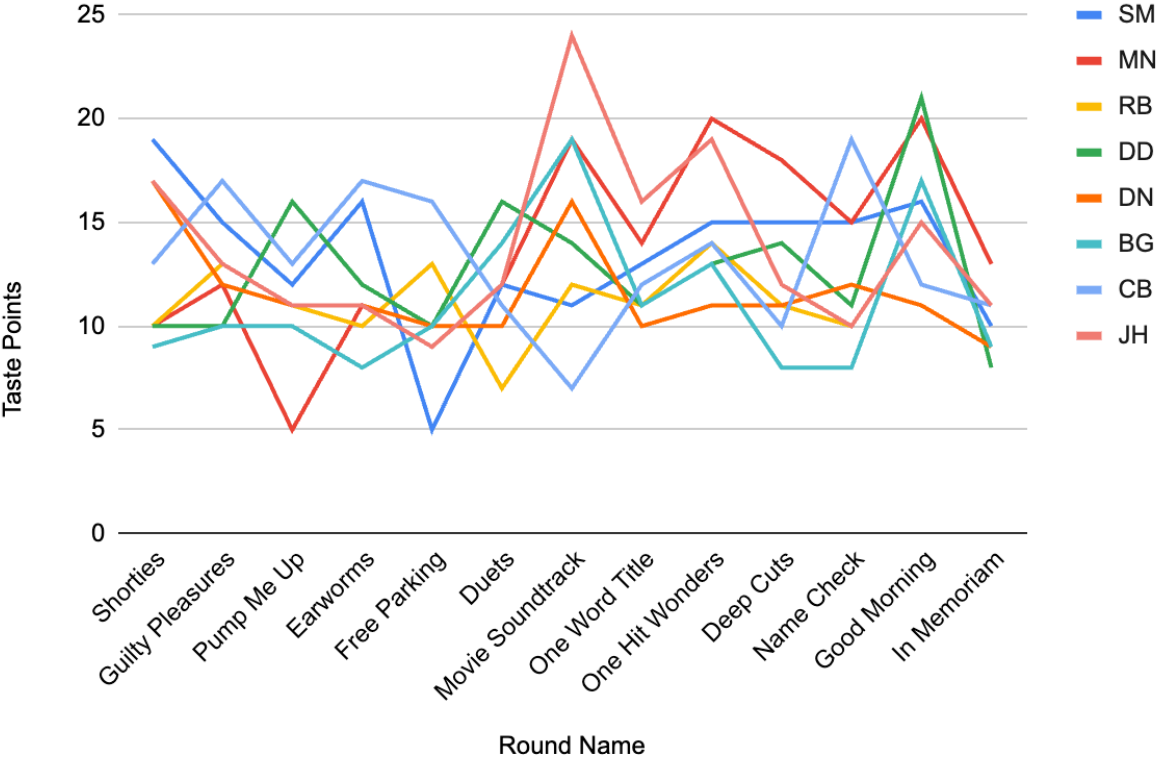


Figure 5: Taste points by individual rounds.

Spreadsheet Sample:

Round Name	Song Name	Artist	Who Submitted	S	MN	KS	RB	DD	DN	BG	CB	JH	Total Sum	Round Number	Genre	Release Year
Shorties	Chips & Dip	Sam Greenfield	SM		3	3	3	2	2	2			15	1	Pop	2022
	Misery	Beatles	KS	2	2			2	2	1		2	11		Rock	1967
	Minimum Wage	They Might Be Giants	DD	1		2			2	1		3	9		Alternative/Indie	2021
	Vulture Meets Culture	Daniel Pemberton	JH	1	1		2		1	2			7		Soundtrack/Instrumental	2016
	Arrival	The Alchemist	BG	1	1	1	-1	1				1	4		Hip-Hop	2020
	Malboro Nights	Lonely God	DN	2	-1	1	1	1			-1		4		Alternative/Indie	2019
	The Happiest Days of Our Lives	Pink Floyd	MN				1	-1			1		1		Rock	1979
	Adieux	M83	RB	-1		-1		1	-1				-1	-3	Electronic/Indie	2005

Link To Full Spreadsheet: [Full Spreadsheet](#)