

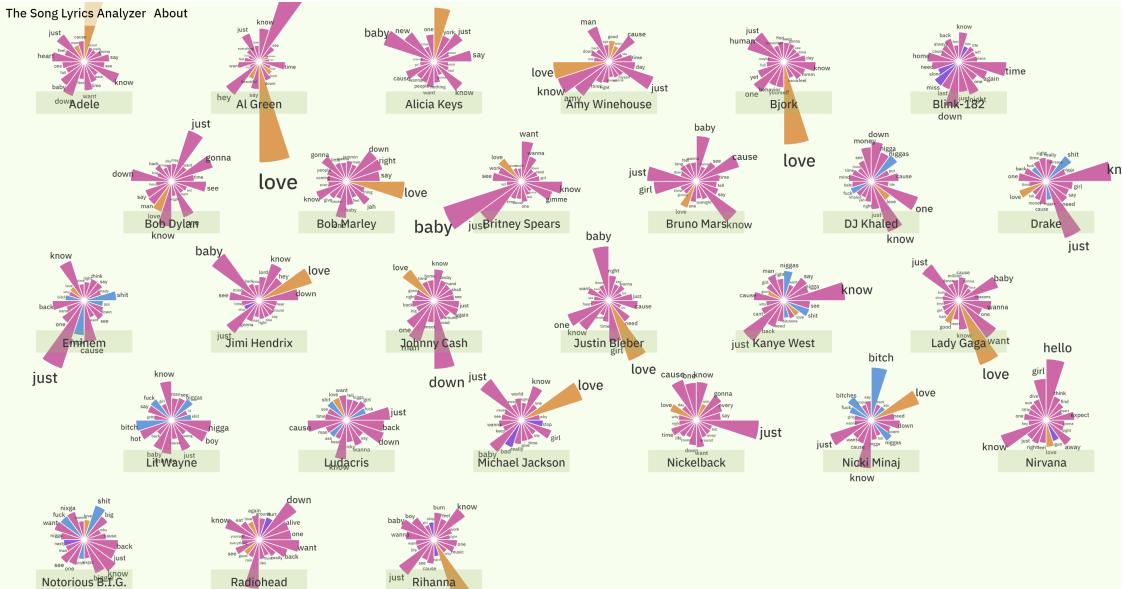
Final Written Report

Song Lyrics Analyzer

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Project Description Reminder



This project analyzes song's lyrics from major artists from the 20th and the 21st century. A graphic representation shows the the most used words for each artist.

Technologies

I used **Natural**, a **natural language processing** tool, to process the lyrics of the different songs.

I used the **tokenizer** to separate each word.

I used the Term Frequency–Inverse Document Frequency (**tf-idf**) to know which words are the most frequent ones for each artist. The 20 most frequent words were used to create the stars.

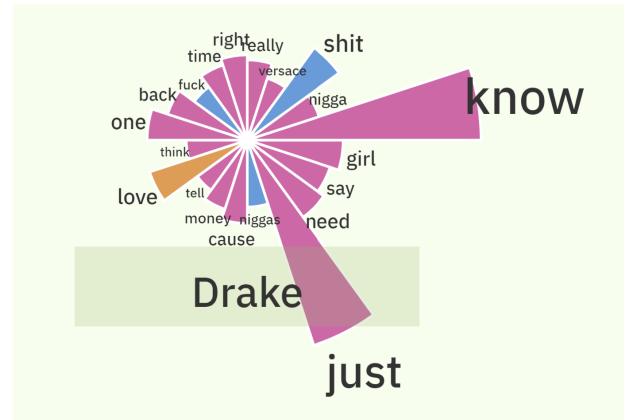
► To create the “Stars”, which are the visual representation of song lyrics, I used several technologies. The arcs are drawn using **p5.js**.

► I used **Sentiment Analysis**, an algorithm of **Natural**, to determine the sentiment associated with each word. This sentiment determined the color of each arc.

Implemented Features

1. Star

“Stars” are the main feature of my project. Each star represents the diversity of an artist’s lyrics. A star contains twenty arcs, which all represent a single word. These are the twenty most used words of the artist. The longer it is, the more times the word was found in the database for this artist.



1.1 Arcs

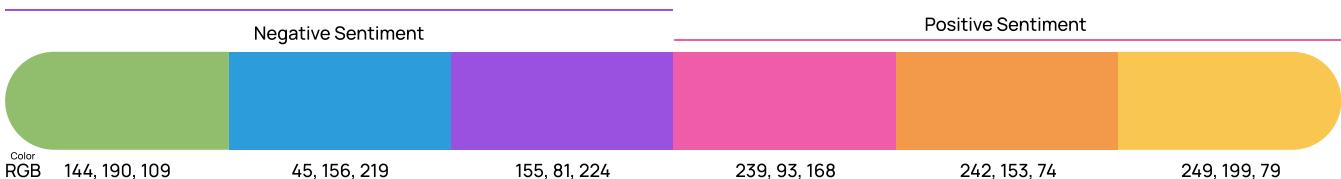
Arcs are the divisions forming a star. As explained earlier, their colors are determined by the Sentiment Analysis algorithm.



1.2 Displayed words

The words that are displayed are associated with the closest arc. The size of the words depends on its frequency. The bigger the word frequency, the bigger the size.

2. Color Chart



Every arc has a color, and although it might seem random, it is not. Words associated with negative feelings have cold colors and words associated with a positive sentiment have warm colors. This color chart is an additional feature in the about page. It is there to help the user understand the meaning of each color.

Implemented Features

3. Moving around in the canvas

Because of the big quantity of artists, words must be very small on the screen. To make it more legible and interactive, I added a zoom and panning feature.

I used inspiration from these sources:

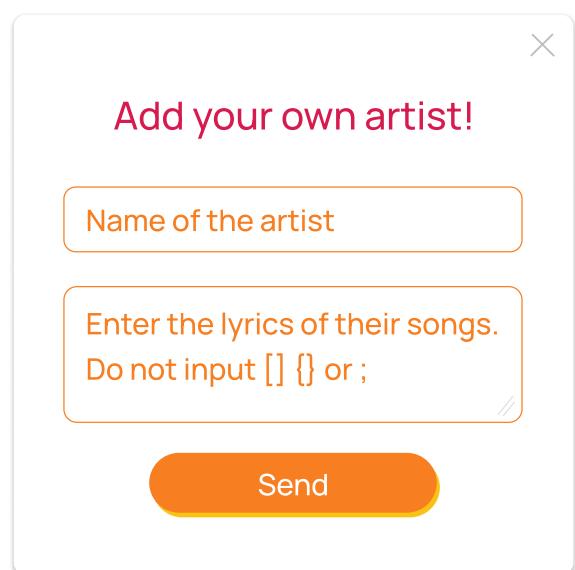
- https://editor.p5js.org/mimimimimi/sketches/SOkckqY_r
- <https://editor.p5js.org/Kubi/sketches/36dfCG35j>

Although I ended up doing something very different, this was a starting point in my thought process.

Features that I wanted to implement

1. Add your own artist

A feature that I would have liked to implement is letting users add a new artist. It would have been a really nice feature to have, as it would become collaborative.

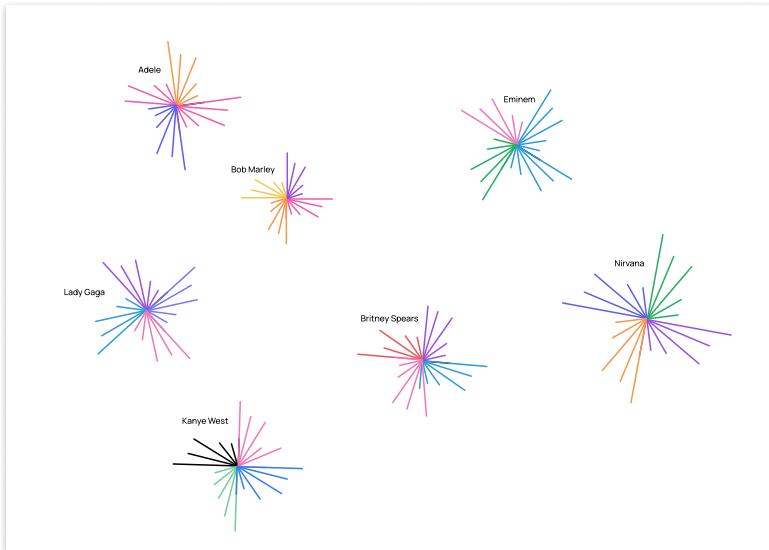


2. Hover an arc to make a word appear

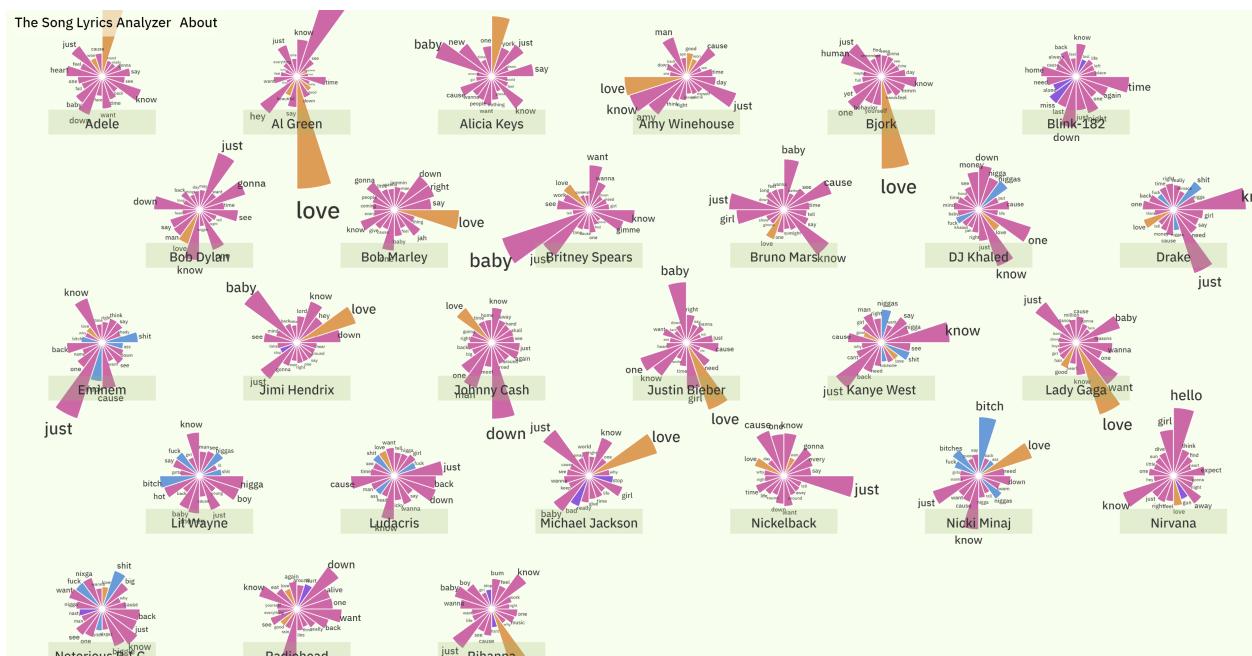
My initial idea was to make the words invisible and let the user hover arcs to see the associated words. When creating the project, I found out that the purpose of the project was much more tangible when all of the words are always displayed. Therefore, I did not include this feature.

How the project implements the intended idea

Below are a design of the intended creation and a screenshot of the final project. I believe that I have successfully achieved my goal. Globally, the purpose of the project is the same and has not changed during the creation. We can find similar features, but some have changed.



Intended creation



Final project

How the project implements the intended idea

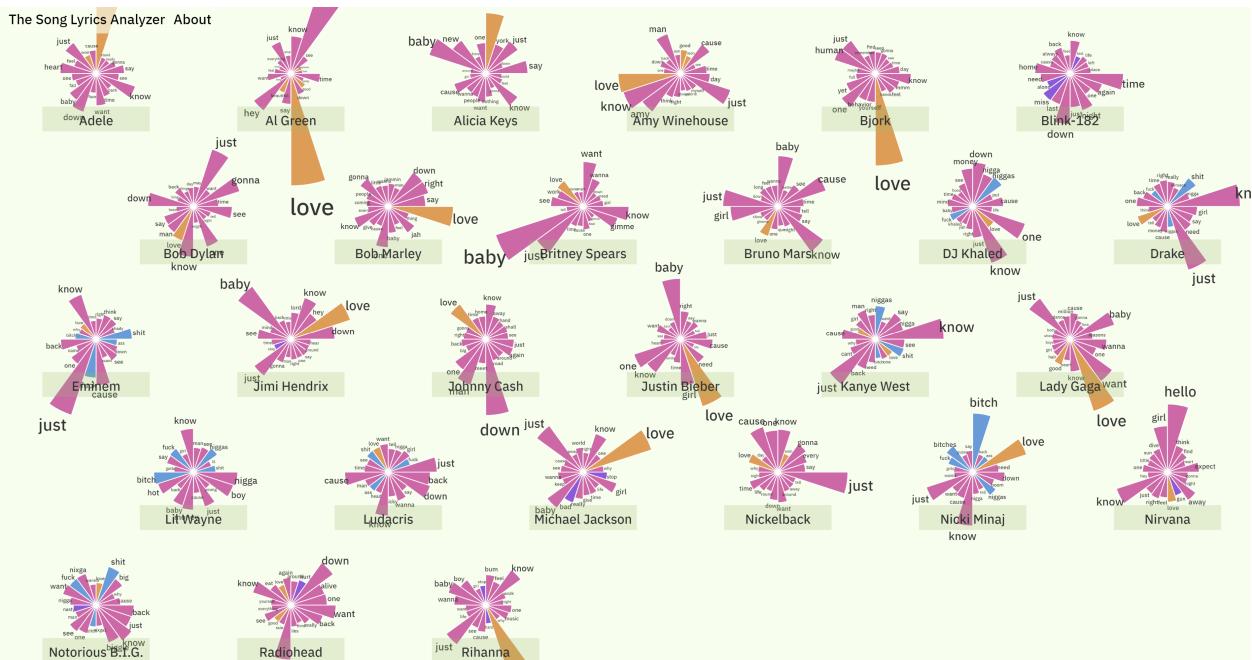
The concept of “stars” has evolved through the project. Initially, I wanted the stars to be composed of thin lines. When I started creating the stars, the lines were almost not noticeable enough, especially in a zoomed out view. This is why I decided to create arcs instead of lines.

Moreover, I altered the main interaction to highlight my findings. At first, I wanted the user to hover the lines in order to see the words. When coding my project, I realized that it would be much easier to have a quick overview if the words would always be displayed. Thus, I did not include the hover interaction and we can always see all the words. This is not such a major change as the project still has the same concept.

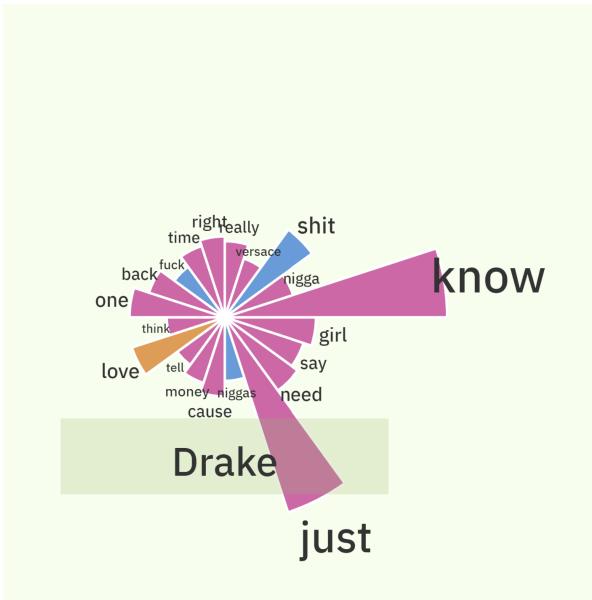
A final element that has changed is the color palette. When creating my initial design, I left a white background to let the stars shine. When I displayed all the stars on the screen, I was surprised by the lack of diversity in the colors. Although I included yellow and green in my color charts, these colors did not appear. Most of the colors were pink and orange. Therefore, I decided to add a light green background to make my creation more colorful.

In conclusion, my project embodies the same purpose and ideas as in the proposal phase, but some aesthetic elements were edited during the creation. The goal is still to observe the words used by influential artists and see their positive or negative connotations.

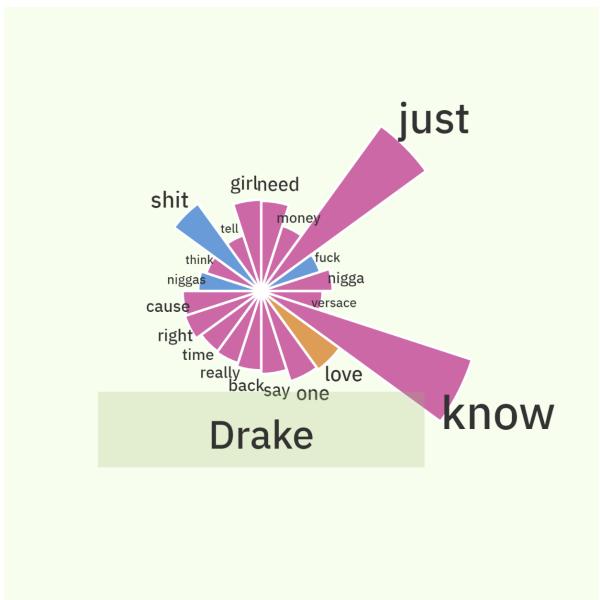
Screenshots



Overall project. We can see the stars for all of the artists.



Example of a star, zoomed in.



Example of the same star where the arcs are displayed differently.

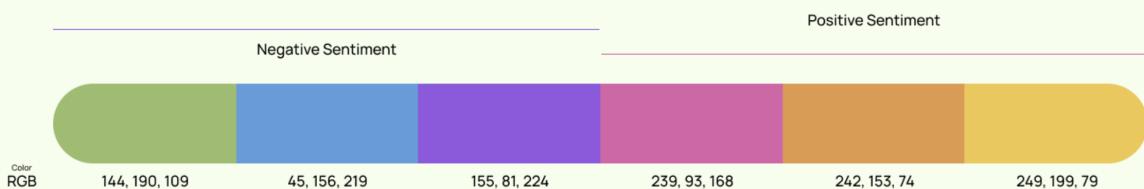
Screenshots

About the project

This project analyzes song lyrics from more than 40 major artists from the 20th and the 21st century. The main goal is to compare word similarities or differences between all the artists.

A graphic representation displays a set of words for each artist, which will be linked to others. I call these visual representations "stars". Each star is made out of 20 arcs, and each one of them represents a word.

Each word is associated with a color. The sentiment associated with the word will determine its color.



One of the big observations that can be made is that most of the artists have the word "love" as their most spoken word! Another thing that we can notice is that the majority of the words are represented as pink, which means that they are positive words.

If we look into more detail and compare the genres, we can clearly see that pop artists use very positive words because they are represented as orange and pink arcs.

On the other hand, rap artists tend to use more negative words, as we can see more blue and purple.

Finally, Blink-182, the only punk rock band, was the one that had no orange and three arcs of purple, which shows that the words are mostly negative.

I was expecting to see a wider diversity of color.

The About page, presenting the purpose of the project, explaining the color chart and explaining the findings.

Other relevant resources to the creation and implementation for the project

For the zooming and panning around feature, I used inspiration from these sources:

- https://editor.p5js.org/mimimimimi/sketches/SOkckqY_r
- <https://editor.p5js.org/Kubi/sketches/36dfCG35j>

As previously explained, I ended up doing something different, but this was a starting point in my thought process.

Inspiration from in-class readings

Hito Steyerl

Hito Steyerl's text highlights the importance of putting data in context. She starts the text by showing an abstract image revealed by Edward Snowden. Taken out of context, this image does mean anything: "Snowden's image of noise could stand in for a more general human inability to perceive technical signals unless they are processed and translated accordingly". In a similar way, my project extracts words from songs, exactly as they were written, and try to make analogies and conclusions from these individual words. My project does not consider groups of words or expressions. Although the data will be accurate strictly considering the words, the meaning behind the songs is not reflected in the end result.

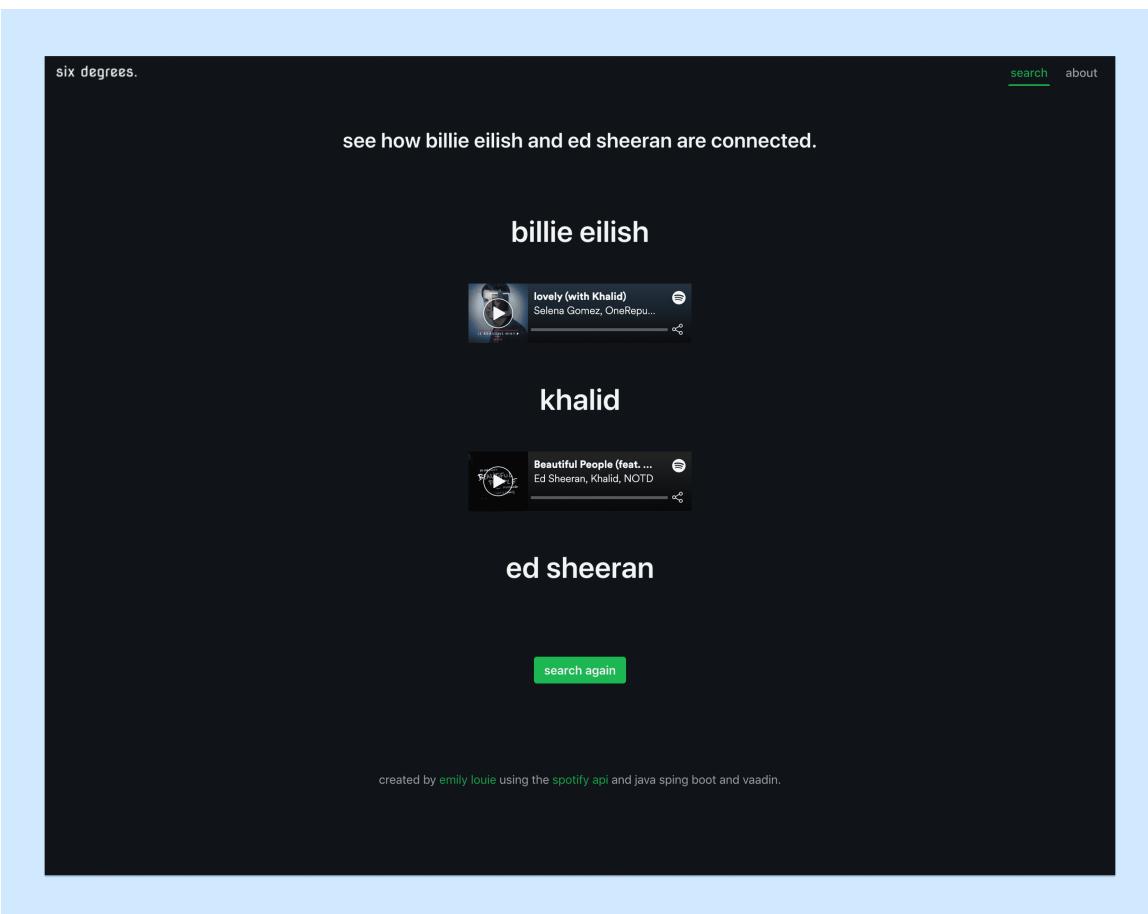
Mimi Onuoha

At first, I thought that my dataset could not be biased because the lyrics of the songs can easily be verified. Then, I realized that the artists and songs in this dataset are only a small fraction of all pop music. My project demonstrates that pop artists use a lot of swear words. The project will not be able to make sense of all the words together and analyze them individually, which could distort the intended meaning behind the songs.

Other Inspiration

Six Degrees of Spotify

A very interesting project made using a lot of data is Six Degrees of Spotify by Emily Louie. In 2020, she created a website that relates the theory of six degrees of separation to music. This theory is that every person in the world is connected to anyone in less than 6 connections. Using the Spotify API, she was able to determine how two artists were connected to each other by looking at their collaborations on songs.



Other Inspiration

Music-map.com

Music-map.com is a website illustrating the connections between different music artists. The user inputs the name of an artist, and a representation appears, showing similar music artists. The user can then click on each artist to see artists similar to this one. I used a similar system to visualize my data.

