Process Book

Jaks

Github Repository

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Overview and Motivation

Music streaming services are getting smarter. Developers have access to a wealth of data about trends and habits of users, and this data is being used to develop statistical models which can offer up music suggestions. One streaming service, Spotify, produces a daily playlist and personalized playlists.

The main motivation for a playlist is to discover new music. As a user listens to a playlist, it would be fun if the user could learn more about it. Items of interest such as lyrical content and even how dancy a certain track is. The goal of our project is to have a focused website that curates this information to a user. Our project will serve as a playlist companion to make it easy to explore data related to the playlist.

Related Work

A lot of the related work on Spotify has to deal with 3D visualizations that correlate to the song that is currently playing. There are akin to the audio visualizations that ship with most media players. There isn't a strong focus on visualizing information about playlists. Our motivation is as Spotify users that listen to the new playlists to find new music. Sites like Genius provide a lot of fun insights into songs and it would be nice to have all that information in one place.

Questions

While our project is mostly for entertainment, it will be interesting to see if our project exposes any patterns in popular music. More to come here as we progress past the midpoint milestone.

Data

We will be getting most of our data straight from Spotify using their web API (https://developer.spotify.com/web-api/). In addition we will be using the Genius API (https://docs.genius.com/) to get lyrical data.

To pull this data, we have built wrappers around the API to meet our needs. The daily playlists will be pulled daily and saved to file. Some cleanup is needed to synchronize the data between the Spotify and Genius APIs.

Exploratory Data Analysis

An initial data visualization we had in mind was star charts. We noticed that the Spotify API provides fun data about their songs. For example song comes with a rating of how dancy a song is or how instrumental or vocal it is. We think these would be well represented by a star chart.

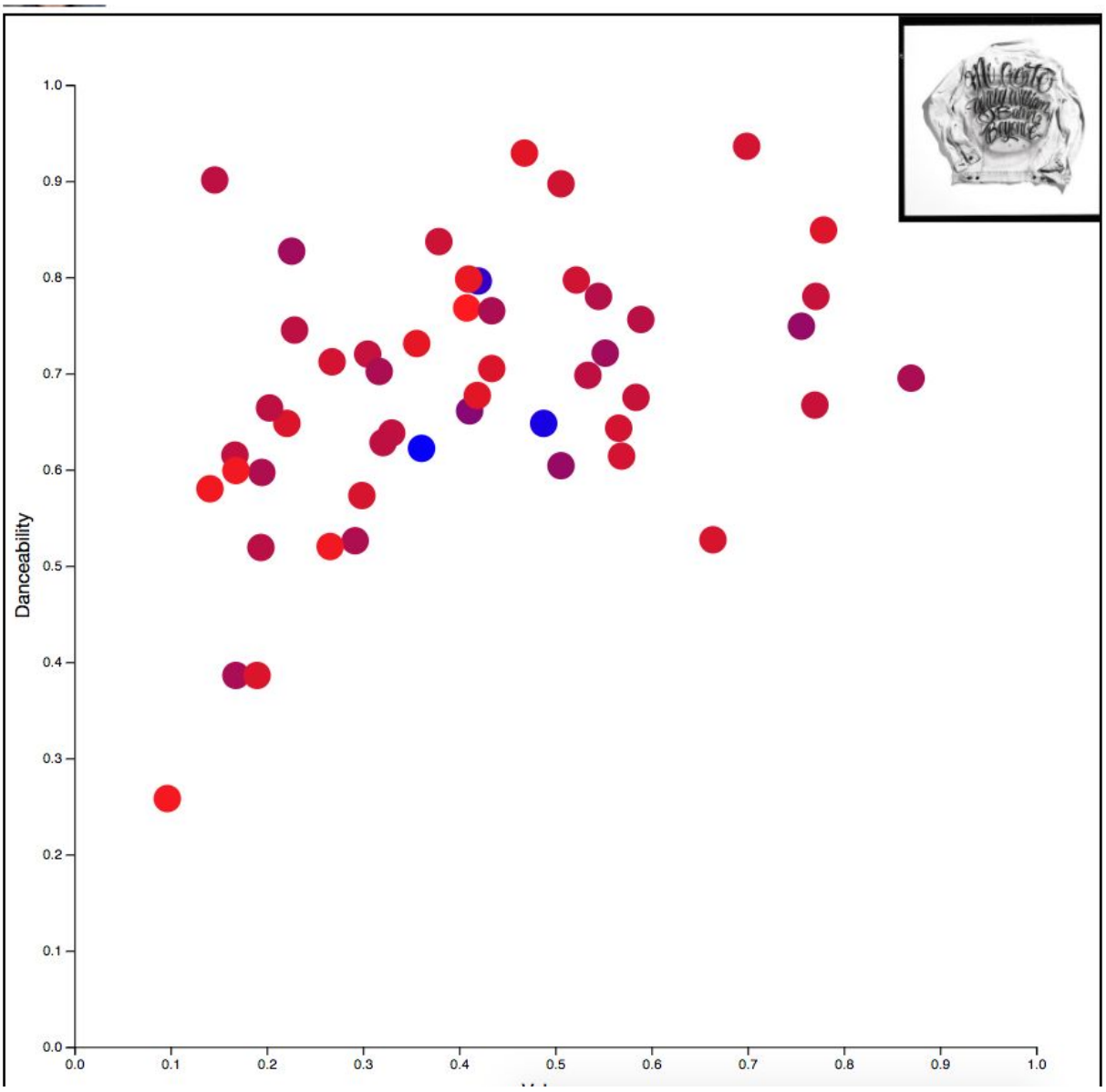
Another point of interest is comparing these attributes using a dimension plot. For example, is there a correlation between the danceability of a song and it's popularity? We intend on polishing these visualizations as well as adding more before the final evaluation.

Midpoint Implementation and Design

We currently display album art, popularity, track information, and a star chart for each song on the playlist.

This is just a proof of concept and we have ideas on how to move this design forward. Actions such as sorting and filtering will be implemented in the future.

Additionally there is a scatterplot that shows the correlation between the danceability of a song and it's popularity. If you hover over a point, you can see the album and track.



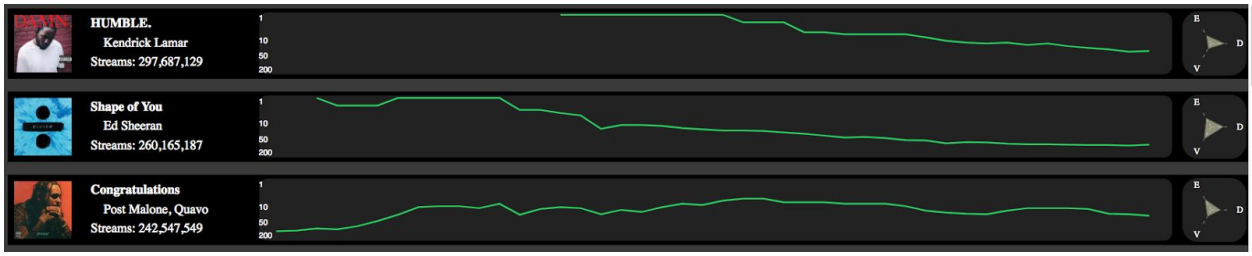
We intend to advance this visualization by adding labels to the points so the user can view information about the tracks before hovering.

Final Design Implementation and Design

A lot of progress was made from the state of our project at the midpoint evaluation. We completely changed our project (from visualizing research papers) a week before the midpoint evaluation. We have a lot of finished features we are proud of.

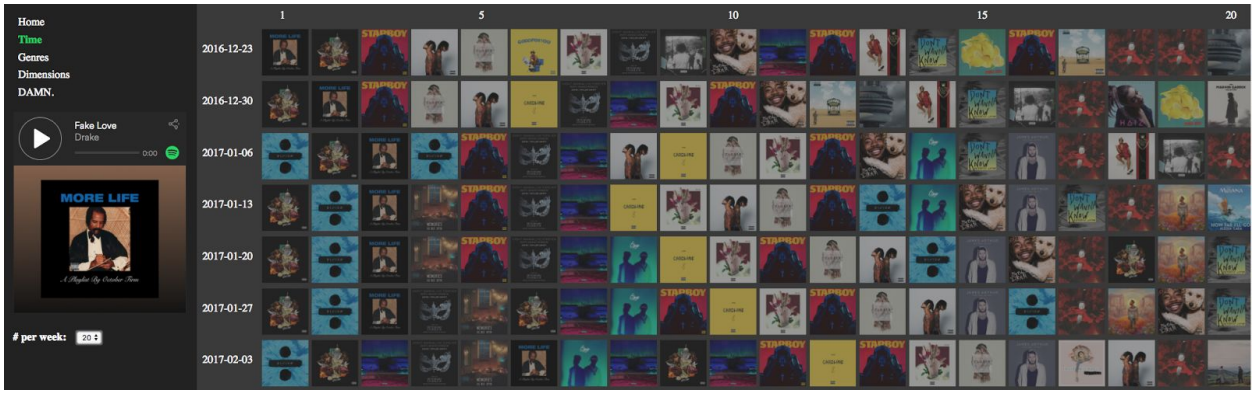
Home Page

The homepage of our website is a sortable list of every song that appeared in the top 200 Spotify charts in 2017. This list is sortable by: stream count, artist name, song name, chart position, weeks spent in the top 200, energy, danceability, valence, and energy. We have attached a wireframe of the design of this homepage to the end of the process book.



Top Charts

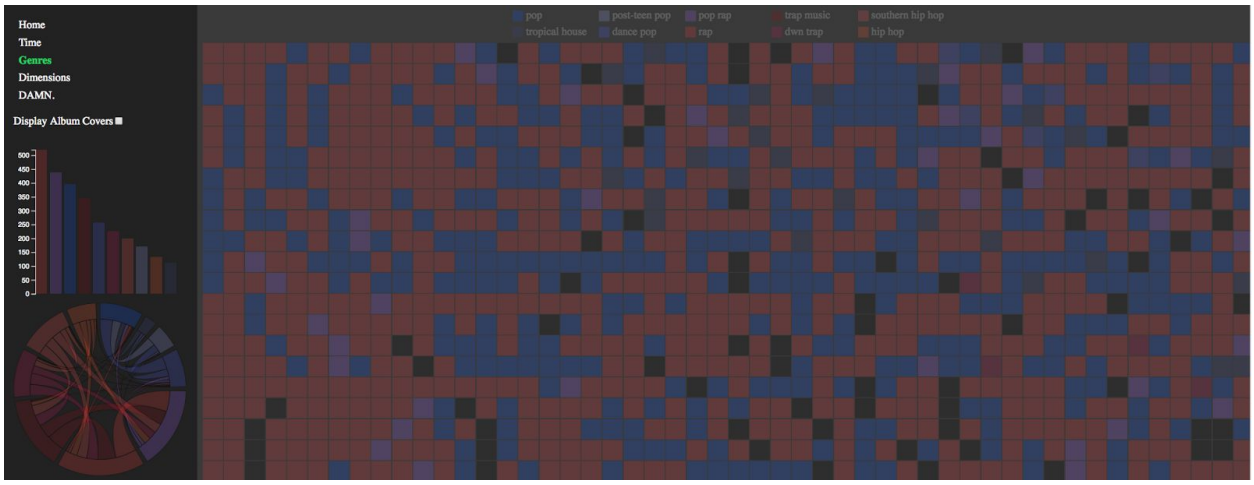
The top chart data view allows a user to explore the top charts for each week in 2017. Each song is displayed with its album art. Clicking an album will load the spotify player inside our project and let you listen to the song. A user can view the top 10, 20, 30, 40 or 50 songs for a week.



Genres

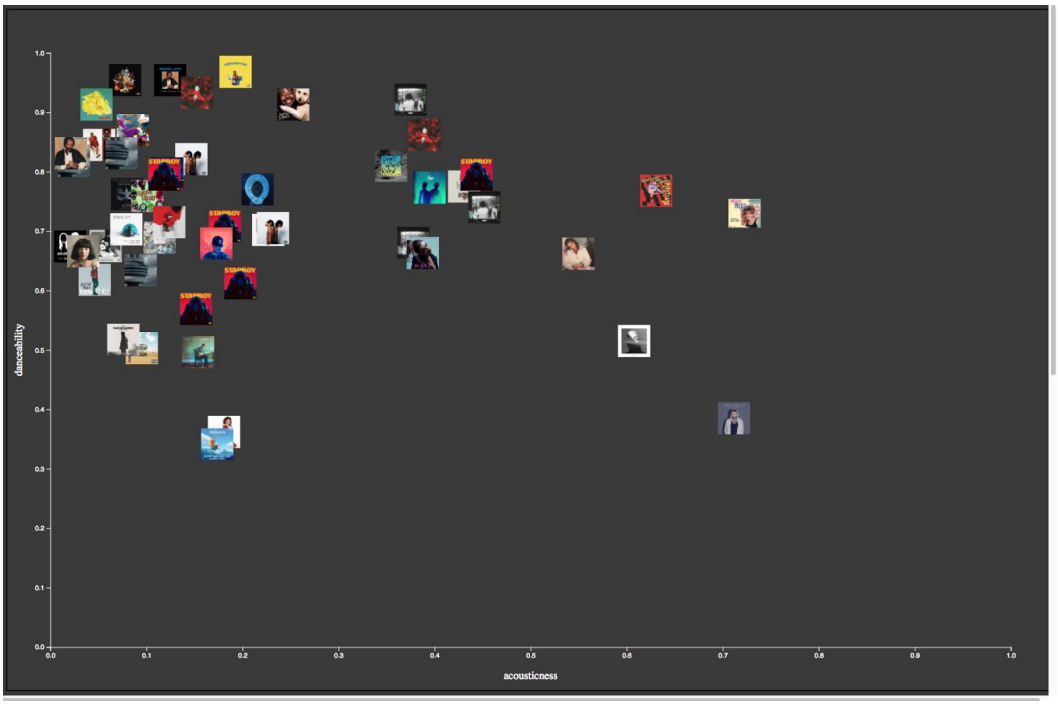
With the genre view a user can explore the data and examine the genre distribution of the songs that appears in the top 200 Spotify charts. Each genre is represented by a color and the data is visualized with a bar chart, chord chart, and area plot which are all

linked. Interaction can be performed by hovering over any visualization to isolate a given genre.



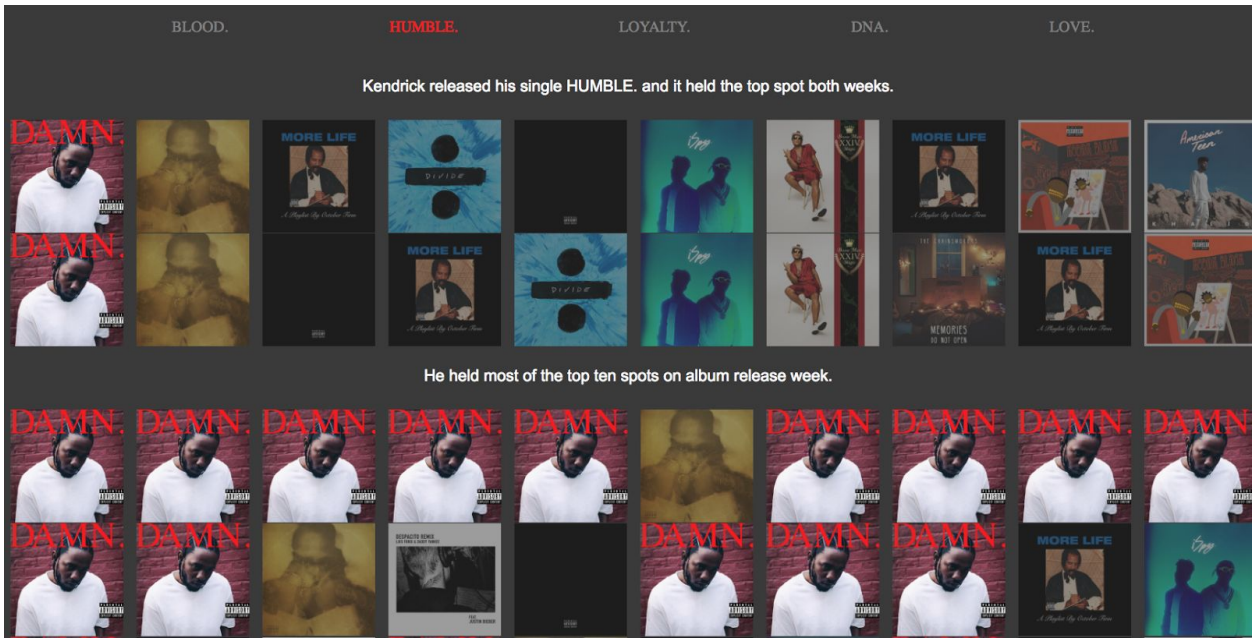
Dimensions

The dimensions page allows a user to examine how different song characteristics relate to each other for a given collection of songs. Two dimensions can be selected (such as danceability, energy, etc) and compared in a scatterplot. This is one of our original midpoint visualizations with added interactivity.



Story about Kendrick Lamar's DAMN. album

We discovered that Kendrick Lamar's DAMN. album had the best run on the Spotify charts in 2017. We felt this would make for a good story so we make a five part click through story detailing the album. We zoom in on our previous visualizations and focus on the album. Another motivation is Kendrick is up for 7 Grammy nominations (only behind Jay-Z, but he owns TIdal so his music is exclusively released on that platform). We felt users would find this interesting since it is Grammy season.



The story can be navigated through the top navigation bar that is styled in the spirit of Kendrick's album.

Color Scheme

Our project relies entirely on Spotify data so we decided to sport their iconic color scheme of greys and green. This gave our project a modern look and a familiar feel to the Spotify player.

Evaluation

We are very happy with our project. A lot of progress was made from the midpoint evaluation to where our project looks entirely different. As our data reflects Spotify data

from 2017, we look forward to posting our website to sites like Reddit so users can see the trends on Spotify this year. One of our team members, Maks, is considering maintaining the website and automating the acquisition of the data using the Spotify API.

Appendix

Home Page Wireframe: