Curating Playlists with Musical Ties

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Abstract

It can be difficult to find the perfect playlist for a given mood or occasion. Existing visualizations of music do not organize information in a way that allows the user to easily navigate the data and create their own playlists. Musical Ties is a platform that provides visualizations for musical playlists and songs. It guides the user through the process of exploring new music and understanding metrics that make up different playlists. With this platform, they are able to curate a new playlist that fits their desires.

Keywords: music, visualization

1 Introduction

When creating a playlist of songs, most people use platforms like Spotify or Apple Music which allow the user to search for songs and add them to their new playlist. This process, however, requires that the user has considerable knowledge of existing songs, as well as an understanding of what songs would fit well together in a playlist.

In practice, creating playlists is a much more dynamic process than a list of songs may imply. Given that Spotify and Apple Music have so many existing playlists, people will often draw from these as a source to help find new songs and fill out their own playlists. However, the user is always limited by the songs they have been exposed to and the amount of time they are able or willing to spend exploring. Musical Ties aims to take this process and create a new visual experience for curating a playlist that focuses on measured song metrics and observed playlist patterns, as opposed to relying on the user's own knowledge of music.

Most playlists are thoughtfully put together (i.e. curated) by someone who knows or loves music and believes that the songs they chose go well together. Although what songs 'go together' is inherently subjective, there are usually some observable patterns that connect songs in a playlist. A slow ballad, for example, would be out of place in a playlist filled with high energy dance music. The goal of Musical Ties is to therefore expose these underlying qualities and patterns of songs that influence us to believe that they belong together in a playlist.

By visually representing song qualities within a playlist (including valence, danceability, speechiness, energy, and acousticness) the user can conclude more about the nature of a song than if they only saw the artist and song name. This will allow a user to understand songs before hearing them, thus making it easier to put together songs and visualize their patterns.

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2 Related Work

In an attempt to help users curate their playlists, Spotify gives user song recommendations based off of the users current playlist. Though this is often a helpful tool for song exploration, the user knows nothing about the recommendations before listening to them. Besides the song name and artist, which the user may not recognize, there is no indication of the type of song being recommended or why it should fit into a given playlist. The process of exploring songs and creating playlists is therefore blinded in a sense with this method. In addition, these recommendations are given based off of existing songs in the playlist. If there are few songs currently in the playlists, this limits the ability to provide accurate recommendations for songs in which the user may be interested.

Most other music visualization tools that use the Spotify API show similar metrics for songs and playlists, but do not organize the data in a way that would allow the user to discover songs to add to a playlist. Interactive Spotify [1], for example, allows one to visualize their own playlists based on two metrics at a time. If one aimed to use this data to create a new playlist, it would be difficult without more information about the different songs. This platform also requires that the user has a Spotify account and relies on their existing playlists for its visualizations. Users without an account would not be able to take advantage of the visualizations provided. Also, the reliance on the user's existing playlists limits the amount of data that is portrayed for people who have few playlists or playlists with few songs. Interactive Spotify, like several other Spotify visualizations [2][3], also does not allow the user to easily compare playlists, and instead focuses on songs within a given playlist. It can be difficult to get an understanding of the overall dataset when each visualization focuses on a small subset of the data.

Similarly, other Spotify visualizations do not portray the data in a digestible way for playlist curation. Out-of-tune has a large amount of data, and allows the user to interact with that data by starting with a few nodes representing a group of the data and continuously expanding that data to get a closer look. However, the network graph quickly grows and displays many different data points, making it difficult to parse through the information and understand what is being portrayed in a short amount of time.

3 Methods

To demonstrate our playlist curation process, a subset of Spotify's most popular playlists was processed from the Spotify API [4].

With the goal of enabling the user to discover and explore new music, playlists were chosen from a variety of genres. The use of Spotify playlists provided data that is targeted for audiences of a wide variety of musical preferences. These playlists each also had a large number of songs so that the user had enough data to find the songs they desire. We gathered the songs from the playlist and their respective speechiness, acousticness, valence, energy, and danceability metrics. These metrics were chosen because they are focuses on the character or "feel" of the music. Together, they help capture song properties that would be useful in understanding their fit in a playlist.

It was important to allow the user to visualize all the playlists at once and get a sense for what types of songs are in the playlist. For this, the average feature values of each playlist was visualized in a radial chart (Figure 1). The circular nature of the chart condenses the information in a small space, making room for many playlists on the page that are easy to parse at a glance.

The user can further explore a playlist through a radial bar chart representation of all the songs in a playlist [5](Figure 2). Again, this chart condenses the information and organizes it so the user can quickly understand the nature of the songs in the playlist.

The colors chosen are all distinct from each other to accompany the ordinal nature of the features.

4 Results

The user can begin at the home page, which includes a radial chart for each playlist. To allow the user to navigate this set, the platform allows them to filter the playlists by their average attribute values and also sort by these values as well. This way, the user can find playlists that match their own specific criteria for the type of playlist they want to build (Figure 1).

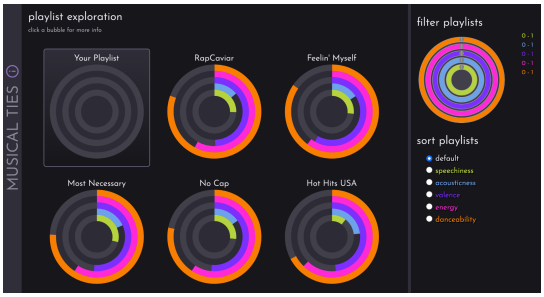

Figure 1: The user can see average attributes for each playlist and sort and filter those radial charts.

Once the user narrows down a playlist of interest, they may navigate to the individual playlist page, which includes the song data visualization for one playlist (Figure 2). It can be sorted by feature value, and can show one feature at a time. There is the option to show only one feature at a time so that the bar charts would have the same axes for that feature, making the values easier to compare. This view allows the user to see the range of songs in a playlist and their values. A song of interest can be clicked on, which brings up a music player so that the user can hear a sample of a song. This allows the user to understand what the metrics mean in terms of the music. This view also provides a list of songs from the playlist that gets scrolled to the song that is being viewed. This list also updates according to the filters and sorting that the user chooses. If the user would like to add a song to the playlist they are curating, they can click the add button. (Figure 3)

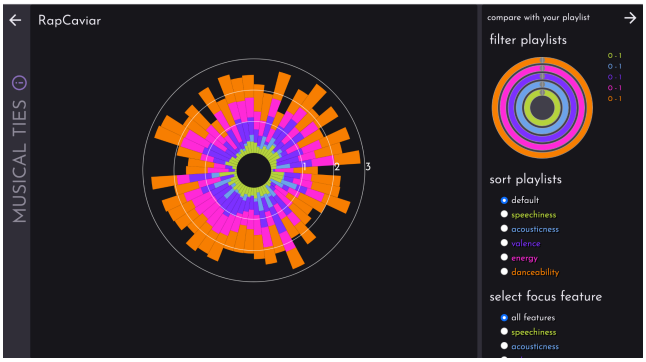

Figure 2: Each bar in the the stacked bar chart represents a song. This chart can be filtered and sorted.

Figure 3: The user can see average attributes for each playlist and sort and filter those radial charts.

Lastly, there is a page dedicated to comparing a given playlist to the playlist that is currently being created (Figure 4). This page has all of the capabilities of the individual playlist page, but provides a side-by-side view of the two playlists. This way, the user can understand how songs that fit into one playlist might fit into their playlist. Here, the user can also name and publish their playlist, which adds the playlist to the home view and portrays it the same way as the existing playlists in the dataset. Note that publishing and other details about the playlist being created can always be seen in the individual playlist page.

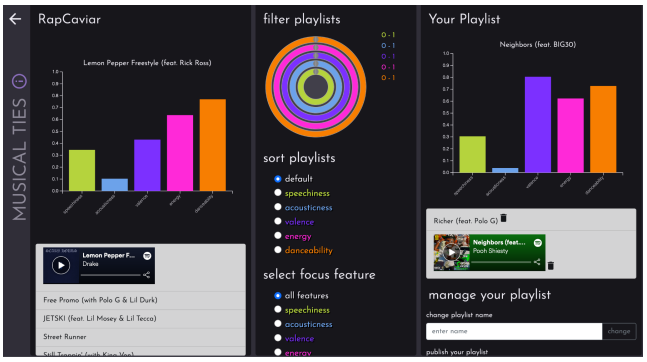

Figure 4: This page provides a side-by-side comparison of a given playlist and the playlist that the user is creating.

5 Discussion

Musical Ties guides the user through the process of analyzing musical data and creating a new playlist based on that data. The data is separated into different pages, allowing the user to digest the data in smaller increments. The layout of the pages shows the user how to best navigate the data by first providing an overview of the data, then zooming into one playlist, and finally comparing the playlist of interest to a new playlist that they are creating. The further the user explores into the platform, the better sense they can achieve of a song that would fit into their new playlist.

Colors are consistent throughout the website, making it easy for the user to understand what features are being portrayed in the filters, sorting, and visualizations. The circular theme throughout the website looks like records, which is fitting for the topic. In addition, having a sense of a good song from the visualization limits the need to listen to each song, which can be time consuming. The user can easily listen once they have narrowed down options.

There is a tradeoff made when choosing not to connect the visualization to the user's Spotify account. It encourages exploration of new music and inclusivity of users, but adds some friction to being able to listen to the created playlist in the user's platform of choice. However, the publishing feature still allows the user to easily access the new playlist and achieve the overall goal of understanding what music is available and of interest to them through visualizations.

6 Future Work

In the future, this application can be extended to use a server and allow users to actually connect to their Spotify accounts. The current state of the project acts as a proof of concept of what can be done with Spotify playlist information. By allowing a user to actually connect to their account in the future, they will be able to import their own playlist library and save the playlist that they curate with Musical Ties. It would also be interesting to allow the user to edit their own playlists through the application. All of this would be easily possible with the Spotify API.

It would be interesting to explore additional information that can be attached to each playlist and song such as genre and popularity. The two metrics would give further insight into the type of song that the user is viewing and how it relates to others.

Another potential change to Musical Ties would be to allow the user to compare more than two playlists at a time. Allowing for up to four playlists, for example, would allow the user to see broader trends in playlist generation. It may also be helpful in comparing and choosing songs from very similar playlists, such as playlists from the same genre.

References

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