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Capstone Project, Group 8

**Final Written Analysis**

**Introduction**

The goal of our project is to create a recommender model that will allow a user to get song recommendations they may enjoy. We are utilizing the Kaggle Spotify Dataset sampling over 600,00 songs to build our model from. Our inspiration came from our love of music and that regardless of anyone’s demographics can listen to their favorite songs and artists. Additional inspiration came from reviewing the Book Recommender that was completed in a previous bootcamp. Our expectation from our model is to provide 10 songs that are similar to the user’s input. This recommender model is based on multiple song characteristics within our dataset.

We created two dashboards for our website. The first focuses on the artist and the genre that they are classified into. The second focuses on the artist tracks, genre and musical attributes. Which we then tracked over time.

Our 1st dashboard ranks music by popularity. We have two visualizations on this dashboard. Our first chart ranks the genre by popularity. The second ranks the artists by popularity. You can hover over the “Top Ten Artists” chart and it will also display all of the genres of that particular artist.

Graphical user interface

Description automatically generated with medium confidence

The dashboard can be updated by can selecting one of the genres from the, “genre ranked by popularity” chart, this will then update the “Top Ten Artists” chart, with artists from that genre. The second way to update the dashboard is to type in artist or genre in the selection boxes at the top of the dashboard. This will update both charts to pull only information related to your selection in the selection box. This feature is useful if you know an artist or genre that you want to quickly see the results for.

Challenges for building the first dashboard resolved around creating the pop up window to display all the genres that an artist may be belong to in the “Top Ten Artists” chart. The genre data field had multiple genre for the artist in one field. We overcame this limitation by using tableau prep and using the pivot table option to parse out the genre for each artist into their own row of data. Next we could not get the genre’s to display correctly within the pop up window. This was resolved by creating a new worksheet with just the genre’s as a martix and then using the tooltip function within our bar chart and inserting the new worksheet as the data. The tooltip insert step can be seen below: Graphical user interface, application

Description automatically generated

The 2nd dashboard explores seven audio analysis features of each song and visualizes how they have transformed throughout time with the ability to utilize global filters on specific or multiple genres and decades. An additional visual identifies what were the most popular genres each decade. All visuals within the dashboard respond to any change in the genre or decade filters, whether one, multiple or all but one.

The first step in reviewing the data was creating a Right-Join between our two data sets. This would allow us to tie the release date of each song to the multiple genres of the artist. Graphical user interface

Description automatically generated with medium confidence

After the join was completed, I worked on creating two calculated fields to identify each songs release date, “Year” and then generated a decade set to utilize as a global filter.

Graphical user interface, text, application

Description automatically generated Graphical user interface, text, application

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Due to the large number of various genres within our data set I created a Genre (group) based on similar genre names to narrow down the genre search within the global filters. For example, this would allow the user to easily select all various “country” genres with one click to review each visual.

Graphical user interface, text, application

Description automatically generated

The data compiled is averaging each metric based on genre and audio feature for each year and decade. The popularity of genre takes the average of each genre for the entire decade to see the transformation over time. The data shows that danceability, energy, loudness continue to trend up the past sixty years, while acoustics and liveness have trended down. Tempo and valence have remained steady over the past sixty years.

Graphical user interface, chart

Description automatically generated

Additional attributes to this dashboard include the color scheme, information button, and link to Spotify. The color scheme is based on the official Spotify colors (Hex Color: #1DB954 & #191414). The information button  identifies how Spotify distinguishes each audio metric for the user to reference. The Spotify logo will bring you to the login page the Spotify webpage. Another attribute was updating the shape logo to be the Spotify logo vs a standard Tableau shape option.

Difficulties that we experienced when reviewing the data and creating these dashboards were that many songs and artists had multiple genres assigned to them. We utilized Tableau Prep to further clean the data to further improve our data when creating these dashboards. Another difficulty was the sheer number of genres within our dataset but were able to manually group these within Tableau.

Both dashboards were embedded and hosted on Tableau Public.

Web page:

Our webpage design was selected from StartBootstrap.com templates. Using CSS stylesheets and HTML we made customizations to the template. This template was selected not only for its simple look but also for its easy-to-use functions that allows for continued user engagement throughout the page. The navigation bar is easily accessible and be utilized throughout the user’s time on our page. It includes buttons to navigate the user to specific sections and back to the top of the page.

A screenshot of a computer

Description automatically generated with medium confidence

On our page you can view two tableau dashboards, our music recommender, information about us, final paper and works cited. The theme was inspired by the Spotify colors and dataset used. The color palette chosen is from U.S. Brand Colors:

Graphical user interface, text, application

Description automatically generated

Conclusion:

Limitations:

-language missing in dataset could be helpful in having it so we can filter for regions/languages.

-individual tracks doesn’t include popularity ranking

Call to action is to take our recommendations and go to your preferred music streaming service to listen to the songs.

Works Cited

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