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Data Visualization

Exploring The World of Music

Introduction

Music is a universal language, bringing joy and creativity to all parts of the world. The western culture has since standardized music composition to the ubiquitous chromatic scale, binning sounds into the 12 different pitches we hear in all songs. Moreover, with the advent of the internet and the advancement in open-source, shared content, learning to play music has become more accessible than ever before. With this comes the widely used website ultimate-guitar.com, which hosts millions of user created tablature sheets (tabs) — music sheet written for guitar fingerings or chords. Moreover, listening and discovering new music is just as easy with applications like Spotify. In this project, we explore the massive amounts of data on these platforms through data visualization.

The data from ultimate-guitar contains an abundance of information about popular songs people play on guitar. Through the user-generated tabs, we not only understand what users prefer but how guitar players may interpret the songs themselves. One contributor might hear the song differently than another and thus would write a very different tabs altogether. These are the types of findings we hope to uncover through exploring this dataset. We scraped data for the top 1000 *tabs of all time* straight from the website. Each tab includes the chord progression, views, ratings, comments, contributors, etc. This gives us a holistic idea of the individual tabs.
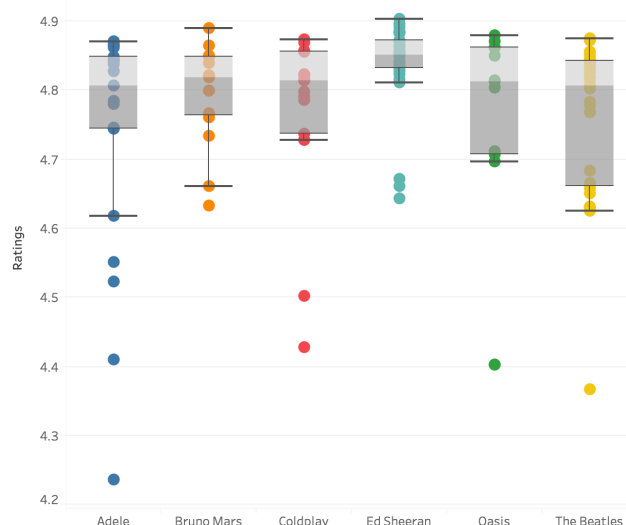
The data from Spotify give us the top 200 songs that were listened to each day from January 1st, 2017 up to January 1st, 2018. The artist, the track name, the number of streams, and the country region are all given to us. We potentially know the most popular song on Spotify on March 23rd, 2017 in a place like France. This type of data helps convey the differences between preferences on dimensions such as geography and seasonality.
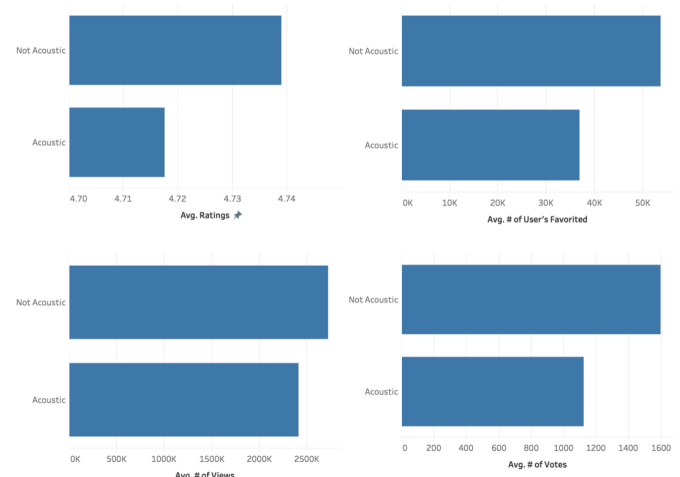
Summary of the Data

We have an idea of how popular tabs are through user ratings, views and other responses. We can see tabs designed for electric vs. acoustic songs are preferred by the general user.

There are many artists in our top 1000 tabs of all time, approximately 388. Though mostly high, the distribution of ratings differ between the top six.

Guitar Player Preferences For Acoustic vs. Non-Acoustic Tabs
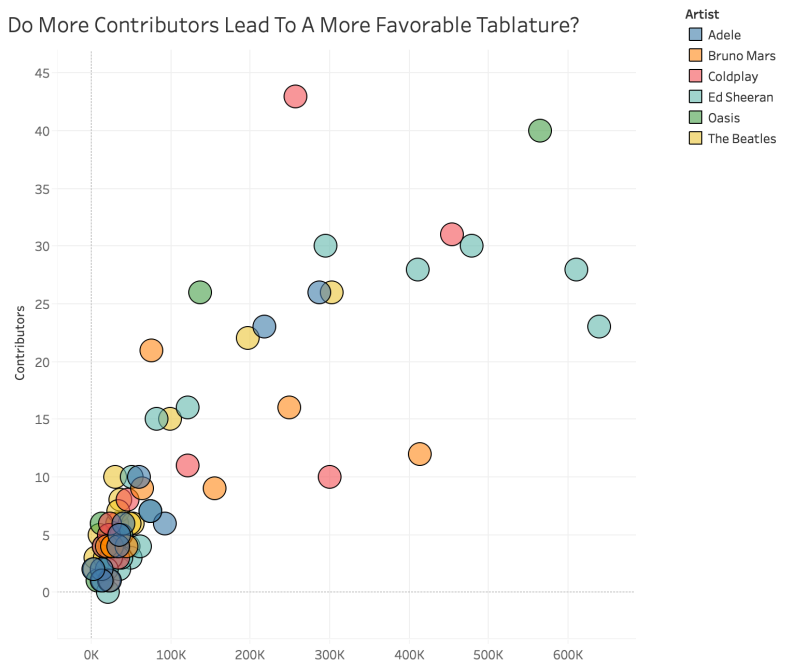

Distribution of Tab Ratings For Top 6 Artists

Do More Contributors Lead To A More Favorable Tablature?

Artist
- Adele
- Bruno Mars
- Coldplay
- Ed Sheeran
- Oasis
- The Beatles

As stated previously, tab creators can receive feedback from the ultimate-guitar community where other guitar enthusiasts can suggest fixes on the original tab. Our data also gives us the number of contributors that helped carve the tab to its current form. This visualization on the right shows how the number of contributors to a particular tab is positively correlated to its overall favorability by the ultimate-guitar community.
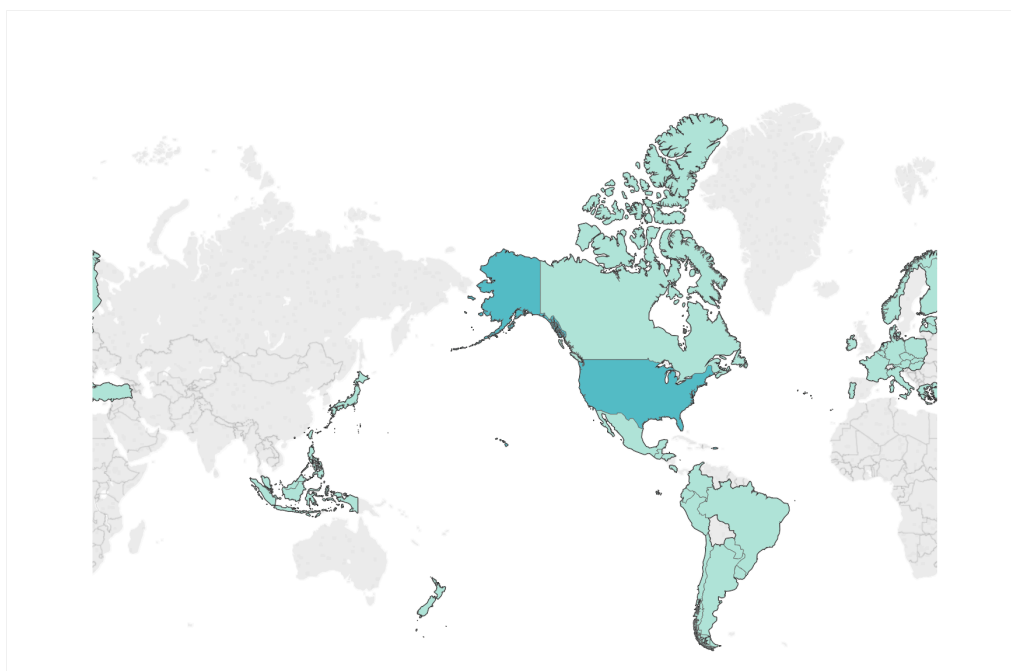
With our Spotify dataset, we can also get an idea of how popular songs are in general all around the world.
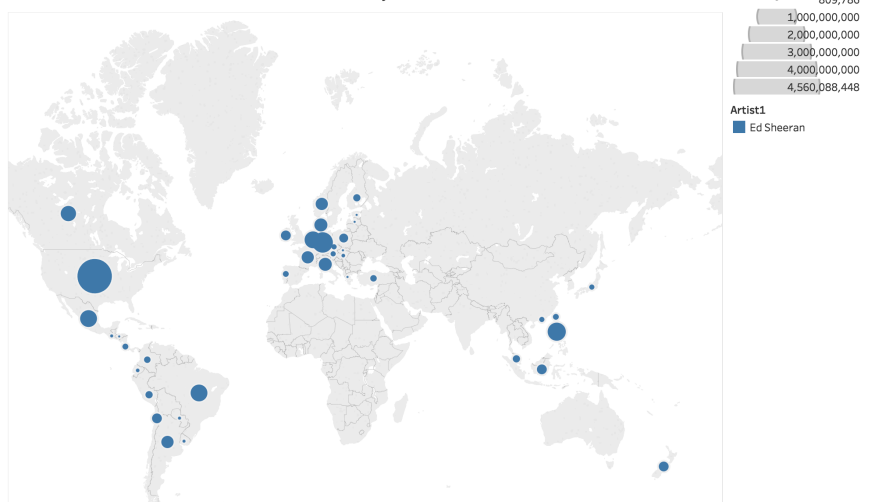
Total Songs Streamed
January 1st, 2017 - January 1st, 2018

Streams
6M — 77B

Clearly their platform is used by many different countries, but mostly used in the United States. Let's see which artist each country prefers. The map on the right displays the artist in each country that has had the most streams on any given day. As you can see, the power of Ed Sheeran has captivated the whole world, with his music being streamed the most in each country out of all other artists on Spotify.

Artist With The Most Streams In Each Country

Streams
- 809,786
- 1,000,000,000
- 2,000,000,000
- 3,000,000,000
- 4,000,000,000
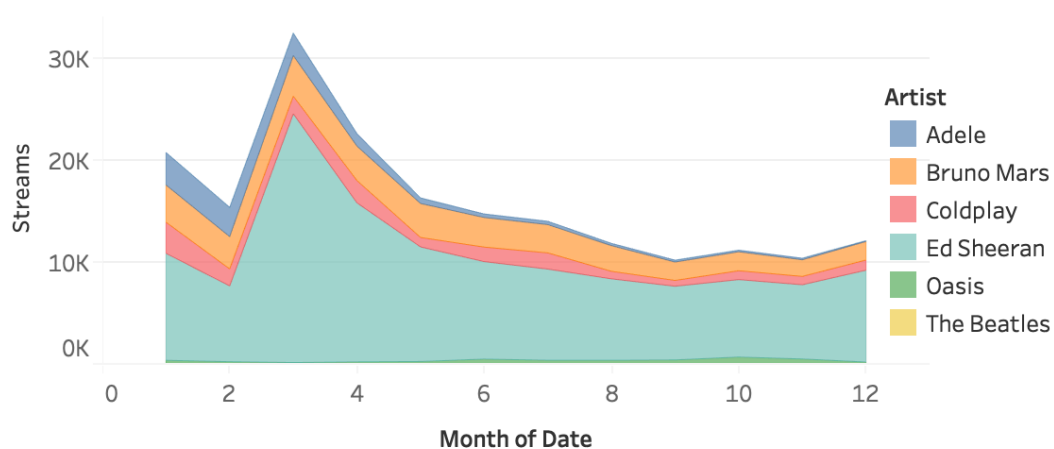- 4,560,088,448

Artist1
- Ed Sheeran

Here you can see the distribution of Ed Sheeran streams, where most fall within the 100k streams/day bucket but a couple of heavily streamed days, up to 10M streams/day.

Distribution of Ed Sheeran Streams
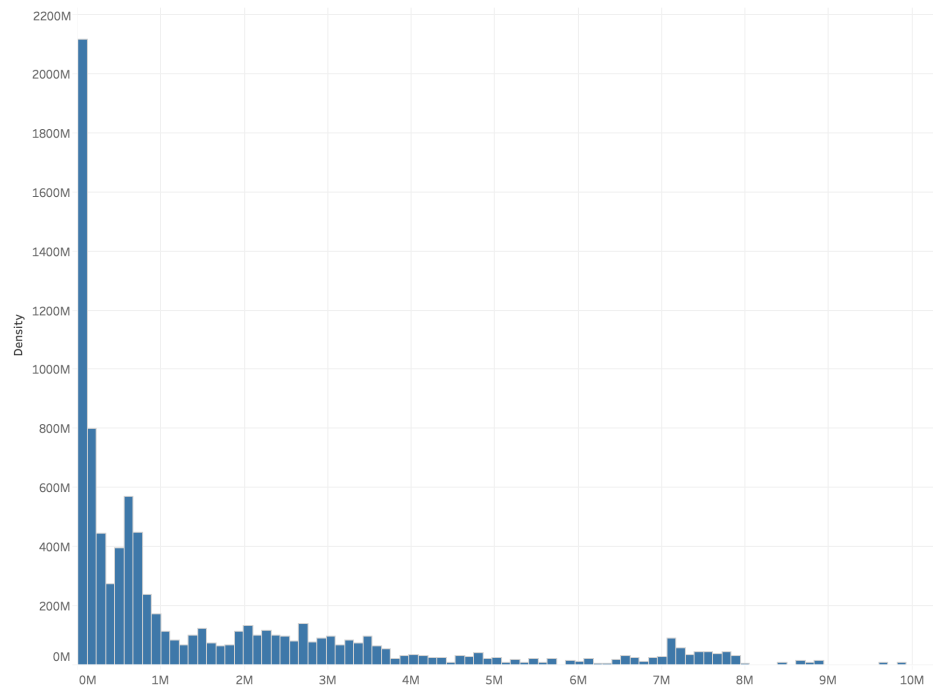
Number of Streams Per Month

If we were to look at the number of streams over time for the top 6 artists, we can see that Ed Sheehan clearly dominates (stacked area chart above). Bruno Mars however is also streamed relatively well, with his 24K Magic record that won a Grammy for Record of the year.

Looking back at the tabs data, let's explore the sound of the songs themselves. In this respect, we will first look at the *key* of each song for the top 6 artists. They *key* of a song is the foundational chord that the whole song is built from. Many describe it as *home* when listening to a song — many chords are played

throughout the journey of a song but getting to the original *key* chord gives the feeling that you're back at home.

What Keys Do The Top Artists Choose

Number of Records
1 □ ■ ■ ■ 7

Key	Adele	Bruno Mars	Coldplay	Ed Sheeran	Oasis	The Beatles
A						
Ab						
Am						
B						
Bb						
Bbm						
Bm						
C						
C#m						
Cm						
D						
Dm						
E						
Eb						
Ebm						
Em						
F						
F#m						
Fm						
G						
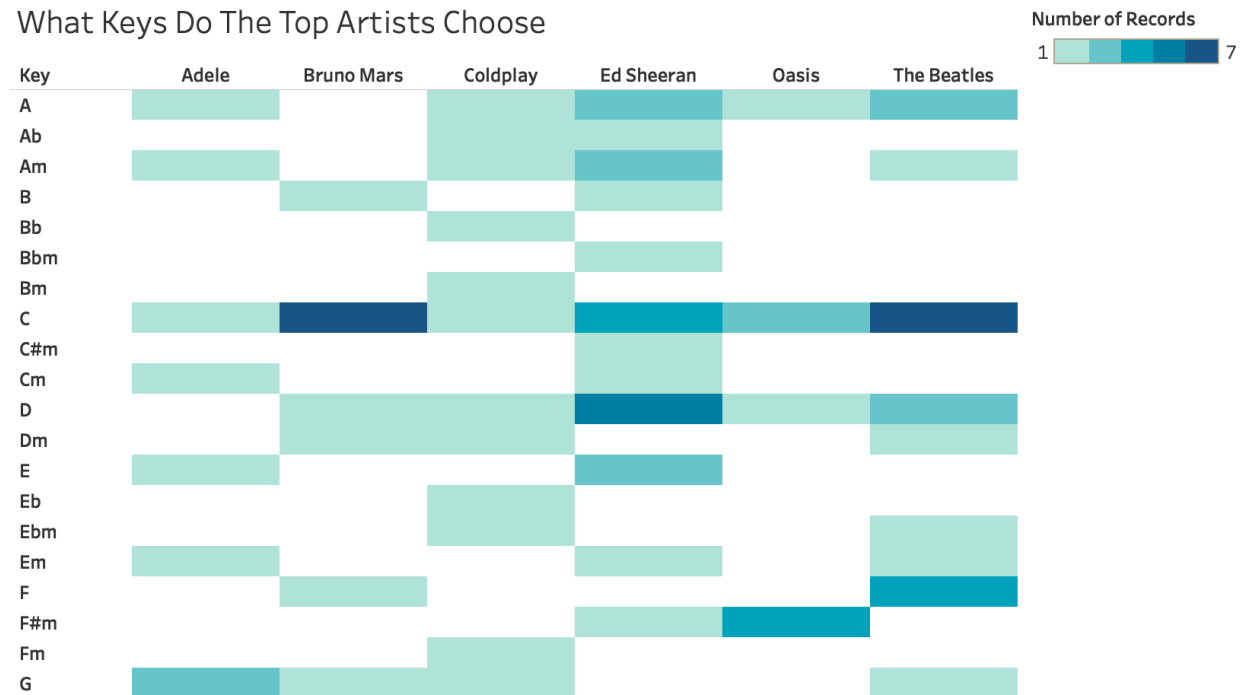
The heat map shows that the songs that the top artists compose are mostly in the key of C. This makes sense as C is the direct center of a full size piano — it's usually the first chord and scale you learn when taking piano lessons. The key of C is common to the ear and is clearly a common choice for these top artists to compose their songs.

The Wonderwall Epidemic
There is an ongoing joke in the guitarist community that everyone that picks up a guitar knows how to play Wonderwall. Wonderwall was made by the British alternative rock band in 1995. It received praise when it first came out, but became known as the go-to song for beginner guitarists.

There are really only four open chords in the song, but the small embellishments that are added to each chord make a beautiful progression that beginner guitarists love to show off. It's an infectious song that's easily impressed, but quickly shut down by those that know of its unnecessary prominence. Many memes have come out, poking fun at the guitarists that love to flaunt their *skills* with Wonderwall.

I DONT KNOW THAT ONE... HERE, LET ME PLAY "WONDERWALL" AGAIN
WeKnowMemes

I CAN PLAY WONDERWALL ON THE ACOUSTIC GUITAR... SO IM KIND OF A BIG DEAL

This visualization explores the top six artists on ultimate-guitar in the form of a treemap. We can see that Ed Sheeran dominates in terms of sheer numbers and the amount of songs he has in the top 1000 tabs of all time. We can also see that the infamous Wonderwall is single-handedly viewed the most out of the top artists' songs. The Wonderwall epidemic continues to this day and does not show any sign of stopping…

Number of Tab Views For The Top 6 Artists w/ The Most Unique Tabs
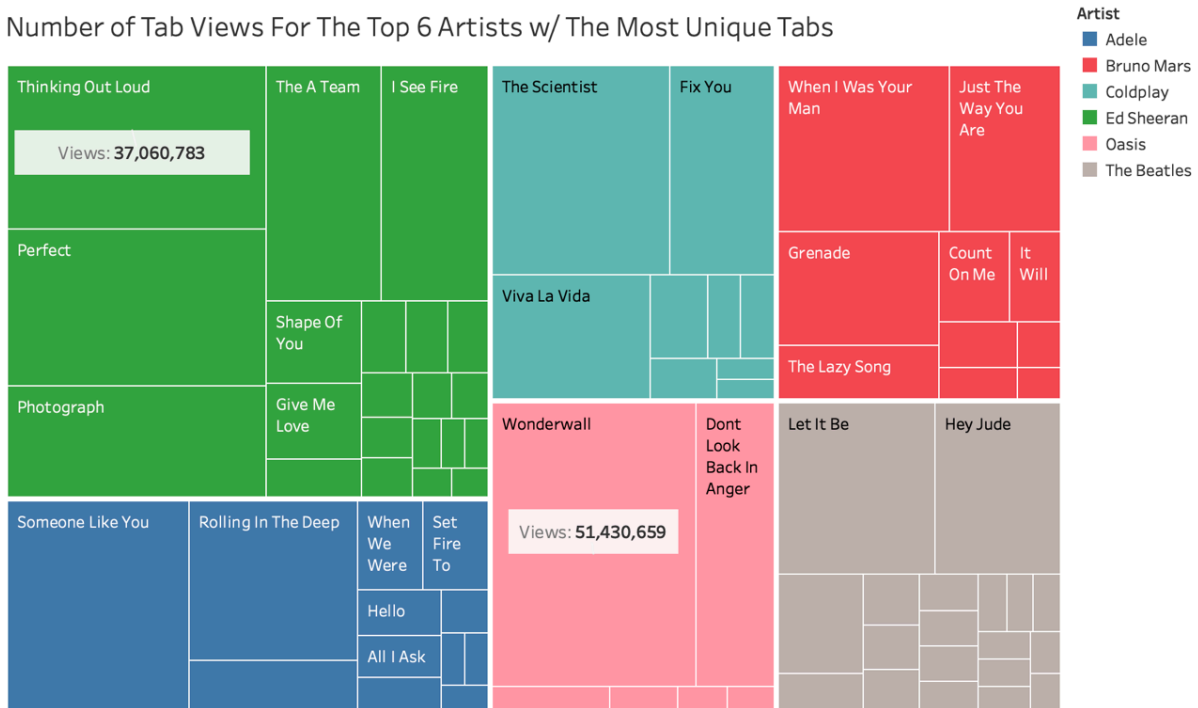
Conclusion

Music is the oldest form of communication, and it continues to thrive in music listeners and learners. With the democratization of music with streaming applications and crowd-sourced tablature creation, we can find popular trends in music enthusiasts' preferences. Ed Sheeran is a clear favorite for many guitar players and listeners, with his eclectic style and pure sound. Needless to say, Wonderwall continues to be the single-most learned song by guitarists around the world, decades after it was first released.

All visualizations were created using Tableau. Data scraping and mining was conducted in Python. Code can be viewed in the repository listed below.

Github: https://github.com/Ljfernando/DataVizFinal

Citations:
Spotify Dataset: https://www.kaggle.com/edumucelli/spotifys-worldwide-daily-song-ranking/downloads/spotifys-worldwide-daily-song-ranking.zip/3