What the Rise of Tik Tok Could Mean for Spotify & the Future of Music Streaming

Introduction

Watching TikTok become wildly popular these past few years, it's been impossible not to be impressed by the insane viral nature of this platform, the way the algorithm can sporadically boost videos from 0 to 100, and how "sounds" (often songs) you hear on the app end up stuck not only in your head, but also on the radio and streaming services. To add onto this, the news that Tik Tok signed a deal with United Masters just a few months ago, allowing artists on TikTok to distribute their songs directly to streaming services, is huge.

But it also makes perfect sense. Offering aspiring musicians a direct pipeline into the music industry through Tik Tok reflects just how powerful this app can be in discovering and propelling untapped talent, and **big players in the music industry are taking notice**.

With Spotify being one of the most popular streaming services, it led me to wonder how exactly Tik Tok has affected music streaming and artist and song popularity. Does this platform really have a noticeable impact on popular music, or are these cases rare? I decided to perform an **exploratory data analysis** to help visualize and better understand the correlation between what songs are promoted on the Tik Tok algorithm and what is popular on Spotify.

Project Goals

The main questions I want to answer:

- Does TikTok have a significant influence on what songs become popular on Spotify?

- If there is a correlation or relationship between "tik tok famous" songs and songs on the top charts, how has it changed as the app continues to grow?

- And finally, how could this new social media platform change things for Spotify?

TLDR; all my findings and conclusions for my thoughts on what these findings mean for Spotify are summarized in the conclusion.

Data Analysis, Initial Thoughts, and Summary of Process

My general process:

- Use Spotify's Web API to grab the audio feature data for the following categories: songs popular on Tik Tok in 2020, top songs in general in 2020, songs popular on Tik Tok in 2018, and the top songs in general of 2018.

- Compare the sound characteristics between data set A (songs popular on Tik Tok) and B (songs popular in general for 2020) using histograms. Repeat for 2018. For each feature, close similarity and overlap between the data sets indicate a stronger correlation between the type of sound and audio characteristic that gets popular in general and on Tik Tok. If generally, we see great similarity, it's reasonable to assume that the types of songs getting popular on Tik Tok are also getting popular on the general charts. More difference in audio characteristics would suggest that what gets popular on Tik Tok is likely less predictive of what is popular in general and vice versa.

- For each audio feature, take a look at the differences in means between the Tik Tok data set and the Top Songs data set. How do these differences change between 2018 and 2020? If the difference in mean between popular songs on Tik Tok versus Top Charts is significantly different in one year compared to the other, it gives insight into how the correlation between songs on Tik Tok and Top Charts has changed over time.

You can find my code on Github.

<u>Data Analysis</u>

I used the Spotify API, pandas, matplotlib, and the spotipy libraries to generate my data. A Spotify search led me to playlists of songs <u>viral on Tik Tok in 2020</u>, and songs <u>viral on Tik Tok in 2018</u>. I chose the playlists with the most followers as an indicator of an accurate playlist. I did the same to find the top songs overall for 2020 and 2018. To have data sets of equal sizes, I had to manually merge two "top songs of the year" playlists to get similar sample sizes. Having large data sets is very important, however because the playlists of Tik Tok songs did not exceed more than ~150, I kept the "overall top songs" data sets to an equivalent size.

After creating my dataframes, I generated histograms to compare distributions for audio features for Top Tik Tok songs against that of Top Overall songs. The orange histograms are for the Overall Top Songs of the year, and blue for Tik Tok songs.

My overall observations:
- For the year 2020, with the exception of song length and tempo, the distributions for each audio feature seems to have very tight overlaps. The types of sounds, features, and thus songs that seem to be popular in one data set correlate well with the other.
- Tempo having a higher frequency in the Tik Tok data set might be influenced by the larger sample (160 vs 139).
- Song length is interesting: songs popular on Tik Tok seem to be noticeably shorter than the charts. This could be due to the fast-viral-and-short video type content that is the core of Tik Tok. The types of songs that tend to be longer may not have the viral qualities that are often needed to blow up on the app.
- For the year 2018, we see much more variance between distributions, particularly for energy, loudness, valence, and length. Songs on Tik Tok have a greater range in energy,

greater range in loudness, slightly higher valence and slightly shorter length. The types of sounds popular on Tik Tok are thus less tightly correlated with the top charts.

Comparison of Audio Feature Distributions for Tik Tok Songs vs Chart Topping Songs in 2020
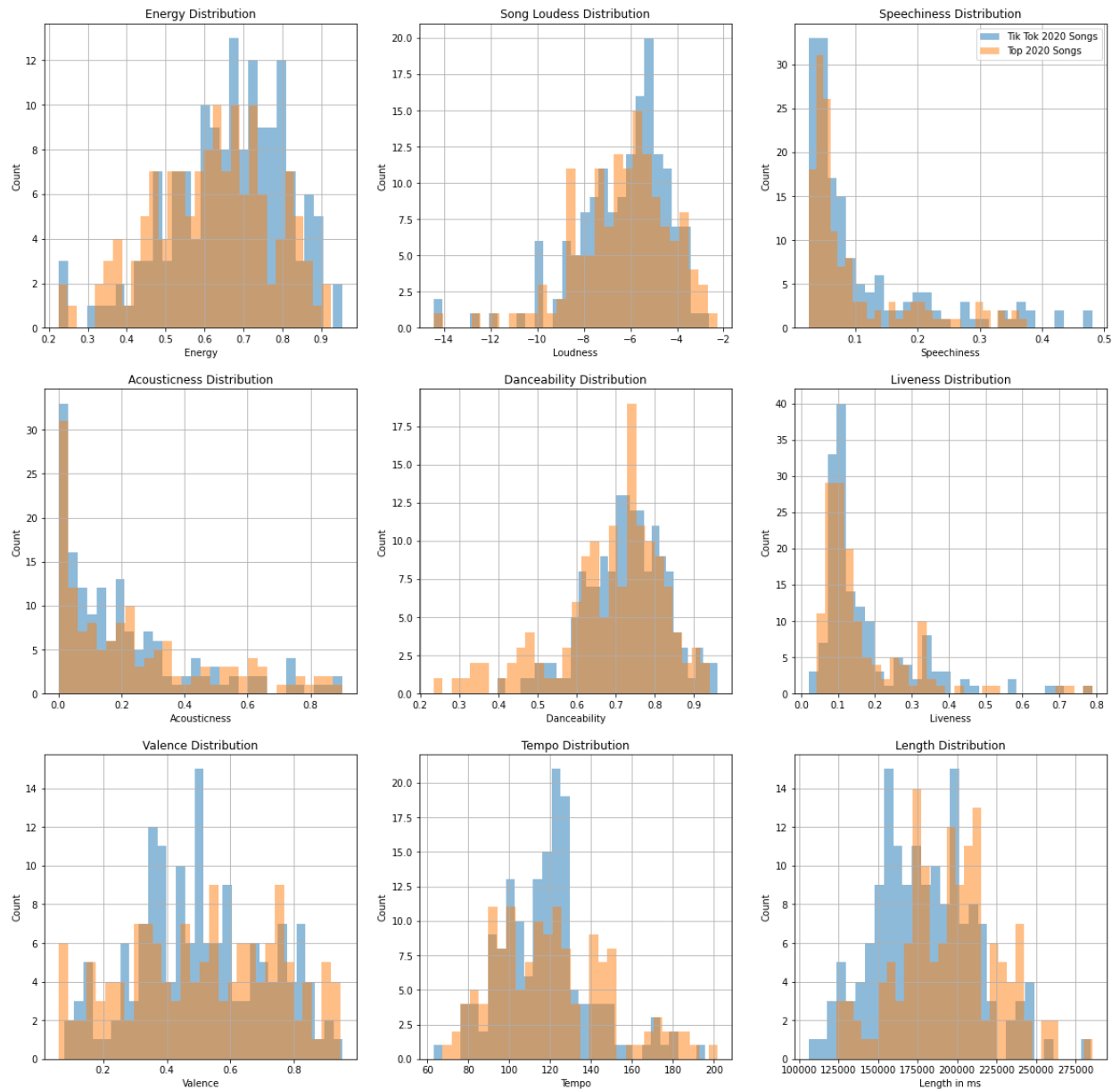
Comparison of Audio Feature Distributions for Tik Tok Songs vs Chart Topping Songs in 2018
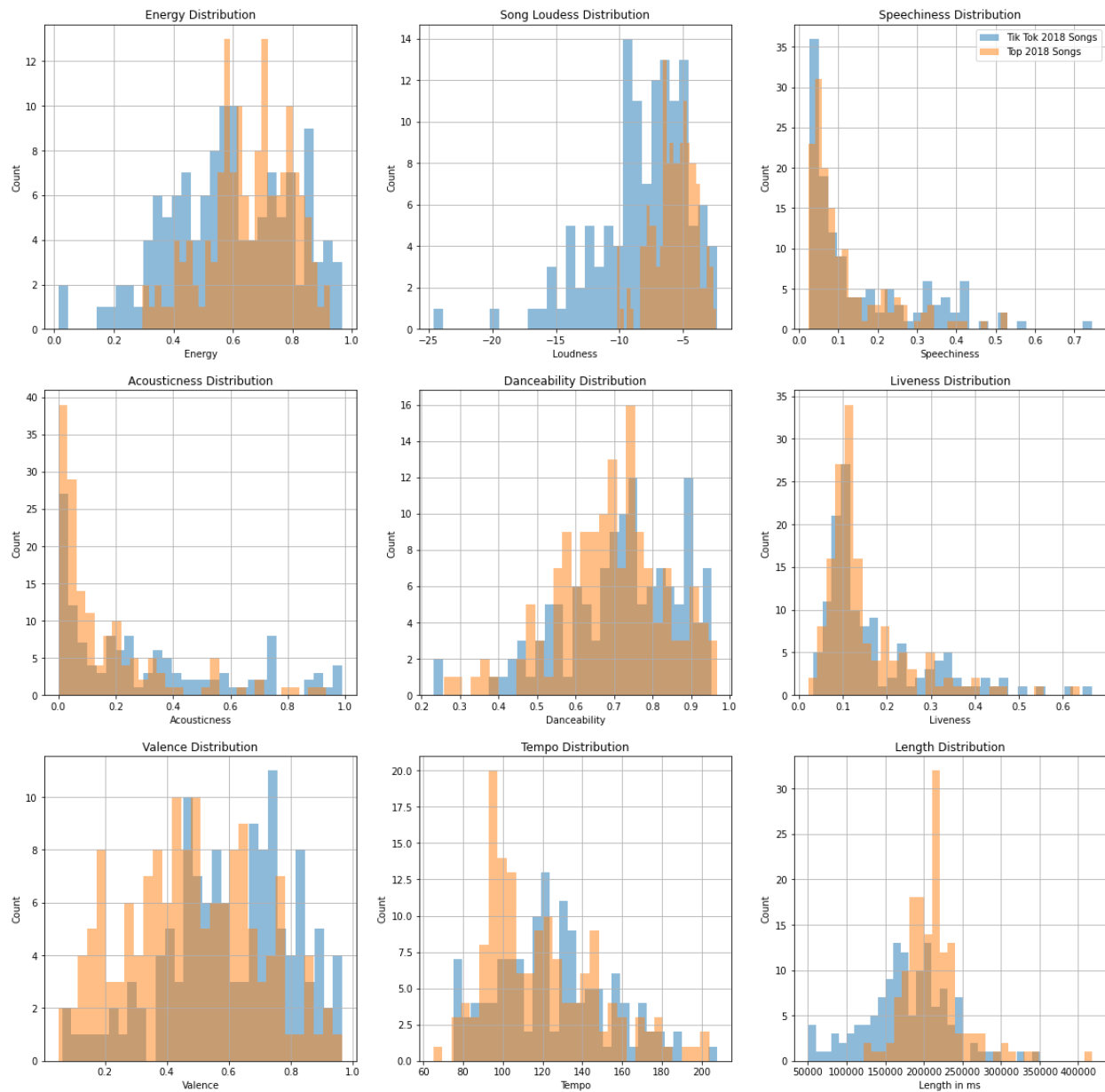

Then, I generated bar plots to visualize how the similarities of features between what's popular on Tik Tok versus the charts has changed between 2018 and 2020. (Separated into 2 graphs for visualization purposes, values of similar scale grouped together).

- For 11 out of the 12 audio features, the differences in mean for features of Tik Tok songs and Top Chart songs were <u>smaller</u> in 2020 than in 2018. This provides more evidence to support the idea that sounds and songs that are popular on Tik Tok are more highly correlated with overall top songs in 2020. There is greater difference in types of sounds that are popularized overall and on Tik Tok in 2018, which makes sense given that Tik Tok's MAU has grown [800% since 9/2018](#).

Comparing average differences of TikTok Songs and Top Chart Songs in 2018 and 2020
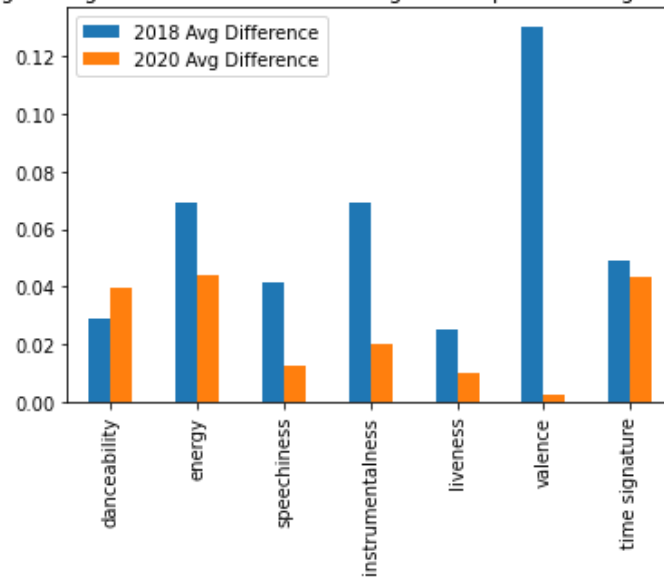
Comparing average differences of TikTok Songs and Top Chart Songs in 2018 and 2020
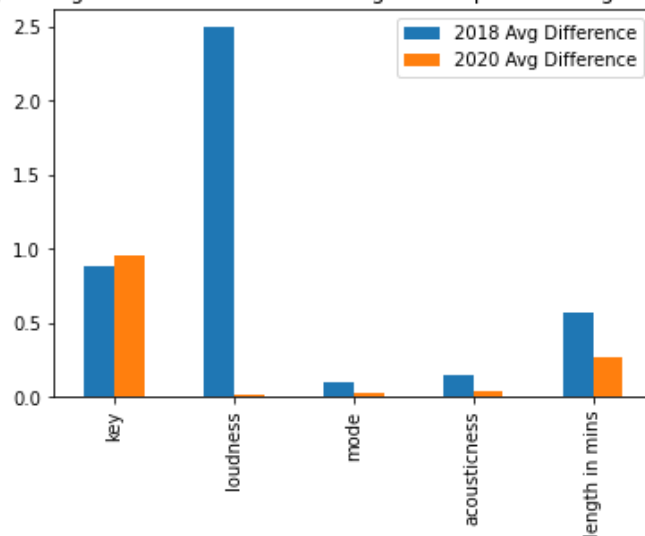
Conclusions and Ideas for the Marketing Team

My EDA illustrates that **as Tik Tok has grown, the songs popular on the app and songs on the charts become more and more predictive of each other**. There's a high correlation between what gets popular on the app and what is popular overall, and this is especially clear once you look into those playlists and see many, many overaps in songs. Perhaps popular songs find their way onto Tik Tok, which creates yet another avenue for these songs to gain more attention to millions of listeners. On the other hand, (and this is my prediction), songs on Tik Tok might be creating a path for new music to blow up on Spotify: perhaps users are **not just passively listening to snippets of songs that blow up, they are making a conscious choice to head over to Spotify and listen** to the track.

It's important to note that my EDA does not show any causation. I can't reliably conclude what direction the influence is going. Are popular songs inevitably becoming sounds on Tik Tok, or is Tik Tok playing a part in bringing more streams to new and old music? My personal experience just existing in 2020 and being active on both platforms leads me to believe the latter, especially seeing older songs like Roses by SAINt JHN, Money Trees by Kendrick Lamar, and Dreams by Fleetwood Mac played everywhere years after they were actually released. But, as an extension to this project, I want to investigate this further and discover whether or not there's temporal precedence. Having access to data of when song snippets were added to Tik Tok, and seeing how streams increased after this date differ from the general trajectory of streams before the sound was added, would help establish the direction of the correlation.

Regardless, Tik Tok has a remarkable ability to influence popular music, and popularize chart topping songs even more, by offering such a global, easily shared platform. And this is true not only for music, but of everything including culture, politics, and new information. Due to COVID-19, influencers from other platforms have turned to Tik Tok with great turnover rates. Those in the public eye have used Tik Tok as a tool to encourage people of all ages to vote in the election this year. It's truly an app that takes the concept of "digital word-of-mouth" to the max.

Because of this, I think Tik Tok can work really well with Spotify's own marketing strategies and what makes Spotify so loved. Spotify's own initial launch started with "word-of-mouth" marketing, starting as an "invite-only" service, with existing users having only 5 invites to friends. And music is such a beautiful and universal experience, that sharing music and playlists among each other becomes an essential part of life for a lot of us. I strongly believe that Spotify's appeal lies largely in how many personalized playlists there are. Personalized mixes for each user? You got it. Hyper specific playlists for that one genre you just discovered and fell in love with? Spotify's already three steps ahead. (Side note: I would personally like to thank Spotify for their playlists.)

There is a trend on Tik Tok that doesn't seem to go away, and that would be people sharing song recommendations and linking their playlists in the comments. **Spotify can embrace this digital word of mouth strategy by starting a social media presence on Tik Tok in the same way it and other companies are on other platforms like Twitter. (**The official Spotify account only has 1 video!) On Tik Tok, <u>Spotify could curate and show song recommendations with artists it partners with in short Tik Tok videos, which could potentially bring Tik Tok users to Spotify to check these songs out and increase # users and streams.</u> I would describe this as the **visual/video version of Spotify's curated playlists**.

I love what music streaming and discovery has done for me as an avid music fan. I'm super passionate about always finding and sharing music with more people, and Tik Tok has the power to help us do just that.