



Global Music Trends

Spotify Data

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Our Project



Research Question

What are the **characteristics** of top songs across the world and how do **external factors**, such as global economic differences, influence diverse music tastes?



Our Data Sources



Spotify Data

Two data sets containing top songs from May 2020 and June 2019 by Country, and also contain characteristic levels for each song.



World Geo Data

Contains ISO tags and geometric qualities for mapping. Will be joined with the Spotify and GDP data to create maps.



2019 GDP Data

Contains GDP values per various countries in 2019. Will utilize to analyze the correlation between economic standing and music taste.

Our Process

01

Preliminary Exploration

Getting a deeper understanding of the data sets.
Subsetting and renaming columns.

02

Joining Data

Joining the world data set with the Spotify and GDP data.

03

Analysis & Visualizations

Creating charts and visualizations to analyze music and economic trends.

Preliminary Exploration

- For each data set:
 - `.shape`
 - `.info()`
 - `.head()`
- Subsetting
- Renaming Columns



Subsetted Spotify Data

May 2020

	Country	Continent	Rank	Title	danceability	energy	key	loudness	mode	speechiness	acousticness	instrumentalness	liveness	valence	genre
81	Argentina	South America	9	Tattoo	0.566	0.766	2	-5.036	1	0.0399	0.43100	0.000000	0.1010	0.547	RnB
82	Argentina	South America	9	Tattoo	0.566	0.766	2	-5.036	1	0.0399	0.43100	0.000000	0.1010	0.547	RnB
83	Argentina	South America	11	Tusa	0.803	0.715	2	-3.280	1	0.2980	0.29500	0.000134	0.0574	0.574	Pop
84	Argentina	South America	19	Blinding Lights	0.518	0.727	1	-5.947	1	0.0557	0.00153	0.000152	0.0882	0.342	RnB
85	Argentina	South America	19	Blinding Lights	0.513	0.796	1	-4.075	1	0.0629	0.00147	0.000209	0.0938	0.345	Pop
86	Argentina	South America	21	Dance Monkey	0.825	0.593	6	-6.401	0	0.0988	0.68800	0.000161	0.1700	0.540	Pop

June 2019

	Date	Position	Country	Title	danceability	energy	key	loudness	mode	speechiness	acousticness	instrumentalness	liveness	valence	tempo	genre
0	2019-06-07	1	Sweden	Heaven	0.748	0.258	7	-7.667	1	0.0664	0.188	0.00	0.0905	0.138	138.193	Underground Rap
1	2019-06-07	1	Sweden	Heaven	0.519	0.955	1	-5.746	1	0.4360	0.249	0.00	0.1300	0.625	164.480	RnB
2	2019-06-08	1	Australia	bad guy	0.701	0.425	7	-10.965	1	0.3750	0.328	0.13	0.1000	0.562	135.128	Pop
3	2019-06-02	1	Latvia	bad guy	0.701	0.425	7	-10.965	1	0.3750	0.328	0.13	0.1000	0.562	135.128	Pop
4	2019-06-04	1	Estonia	bad guy	0.701	0.425	7	-10.965	1	0.3750	0.328	0.13	0.1000	0.562	135.128	Pop
5	2019-06-18	1	Iceland	bad guy	0.701	0.425	7	-10.965	1	0.3750	0.328	0.13	0.1000	0.562	135.128	Pop

Subsetted + Renamed Data

World Data

FID		Country	ISO	COUNTRYAFF	AFF_ISO	geometry
0	1	American Samoa	AS	United States	US	POLYGON ((-170.74390 -14.37555, -170.74942 -14...
1	2	United States Minor Outlying Islands	UM	United States	US	MULTIPOLYGON (((-160.02114 -0.39805, -160.0281...
2	3	Cook Islands	CK	New Zealand	NZ	MULTIPOLYGON (((-159.74698 -21.25667, -159.793...
3	4	French Polynesia	PF	France	FR	MULTIPOLYGON (((-149.17920 -17.87084, -149.258...
4	5	Niue	NU	New Zealand	NZ	POLYGON ((-169.89389 -19.14556, -169.93088 -19...
5	6	Pitcairn	PN	United Kingdom	GB	MULTIPOLYGON (((-128.33222 -24.32726, -128.326...

2019 GDP

	Country	Country Code	GDP
0	Aruba	ABW	NaN
1	Afghanistan	AFG	1.929110e+10
2	Angola	AGO	8.881570e+10
3	Albania	ALB	1.527918e+10
4	Andorra	AND	3.154058e+09
5	Arab World	ARB	2.817410e+12

Joining Data

- Spotify + World
- GDP + World

Joined Spotify Data Sets

May + World Data

	FID	ISO	COUNTRYAFF	AFF_ISO	geometry	Continent	Rank	Title	danceability	energy	key	loudness	mode	speechiness	acousticness	instrumentalness	liveness	valence	genre
Country																			
Argentina	15	AR	Argentina	AR	MULTIPOLYGON (((−71.85916 −41.01128, −71.83806...	South America	9.0	Tattoo	0.566	0.766	2.0	−5.036	1.0	0.0399	0.43100	0.000000	0.1010	0.547	RnB
Argentina	15	AR	Argentina	AR	MULTIPOLYGON (((−71.85916 −41.01128, −71.83806...	South America	9.0	Tattoo	0.566	0.766	2.0	−5.036	1.0	0.0399	0.43100	0.000000	0.1010	0.547	RnB
Argentina	15	AR	Argentina	AR	MULTIPOLYGON (((−71.85916 −41.01128, −71.83806...	South America	11.0	Tusa	0.803	0.715	2.0	−3.280	1.0	0.2980	0.29500	0.000134	0.0574	0.574	Pop
Argentina	15	AR	Argentina	AR	MULTIPOLYGON (((−71.85916 −41.01128, −71.83806...	South America	19.0	Blinding Lights	0.518	0.727	1.0	−5.947	1.0	0.0557	0.00153	0.000152	0.0882	0.342	RnB
Argentina	15	AR	Argentina	AR	MULTIPOLYGON (((−71.85916 −41.01128, −71.83806...	South America	19.0	Blinding Lights	0.513	0.796	1.0	−4.075	1.0	0.0629	0.00147	0.000209	0.0938	0.345	Pop

June + World Data

	FID	ISO	COUNTRYAFF	AFF_ISO	geometry	Date	Position	Title	danceability	energy	key	loudness	mode	speechines	acousticness	instrumentalness	liveness	valence	tempo	genre
Country																				
Argentina	15	AR	Argentina	AR	MULTIPOLYGON ((-71.85916 -41.01128, -71.83806...	2019- 06-17	100.0	Bohemian Rhapsody - Remastered 2011	0.414	0.404	0.0	-9.928	0.0	0.049	0.2710	0.000000	0.300	0.224	142.210	Emo
Argentina	15	AR	Argentina	AR	MULTIPOLYGON ((-71.85918 -41.01128, -71.83806...	2019- 06-13	107.0	Bohemian Rhapsody - Remastered 2011	0.414	0.404	0.0	-9.928	0.0	0.049	0.2710	0.000000	0.300	0.224	142.210	Emo
Argentina	15	AR	Argentina	AR	MULTIPOLYGON ((-71.85916 -41.01128, -71.83806...	2019- 06-03	105.0	Old Town Road	0.907	0.530	1.0	-6.112	1.0	0.127	0.0578	0.000002	0.101	0.507	135.998	Emo
Argentina	15	AR	Argentina	AR	MULTIPOLYGON ((-71.85918 -41.01128, -71.83806...	2019- 06-03	105.0	Old Town Road	0.907	0.530	1.0	-6.112	1.0	0.127	0.0578	0.000002	0.101	0.507	135.998	Hiphop
Argentina	15	AR	Argentina	AR	MULTIPOLYGON ((-71.85916 -41.01128, -71.83806...	2019- 06-20	111.0	Bohemian Rhapsody - Remastered 2011	0.414	0.404	0.0	-9.928	0.0	0.049	0.2710	0.000000	0.300	0.224	142.210	Emo

Joined GDP Data Set

GDP + World Data

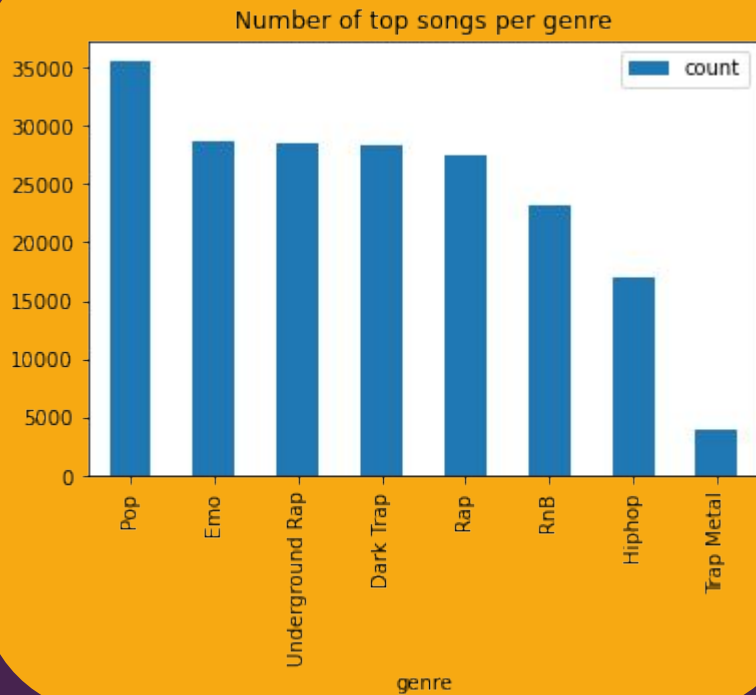
	FID	ISO	COUNTRYAFF	AFF_ISO	geometry	Country Code	GDP
Country							
Samoa	7	WS	Samoa	WS	MULTIPOLYGON (((-172.59650 -13.50911, -172.551...	WSM	8.522502e+08
Tonga	9	TO	Tonga	TO	MULTIPOLYGON (((-175.14529 -21.26806, -175.186...	TON	5.123501e+08
El Salvador	11	SV	El Salvador	SV	POLYGON ((-87.69467 13.81901, -87.72501 13.733...	SLV	2.702264e+10
Guatemala	12	GT	Guatemala	GT	POLYGON ((-89.34831 14.43198, -89.43556 14.414...	GTM	7.671036e+10
Mexico	13	MX	Mexico	MX	MULTIPOLYGON (((-111.56001 24.42945, -111.5761...	MEX	1.268870e+12

Charts

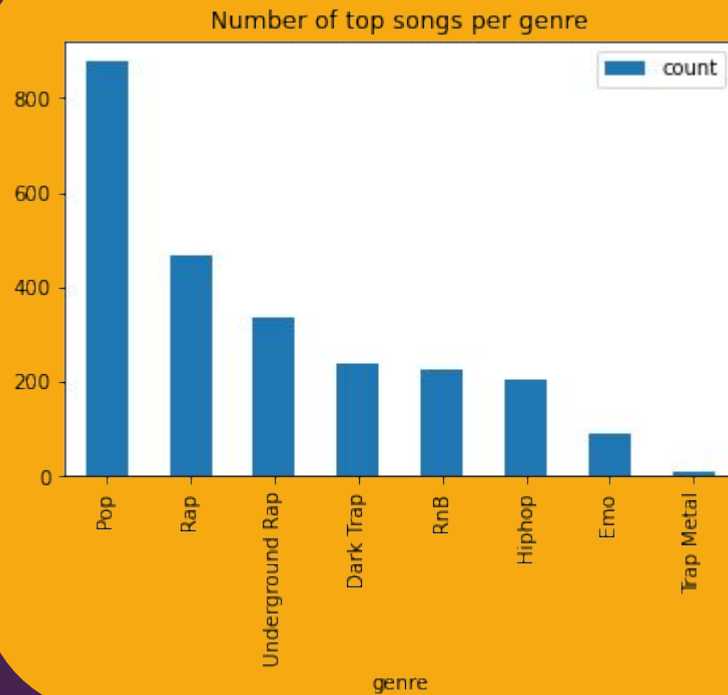
- Genre Exploration
- Song Characteristics: Acousticness

Global Genres

June 2019



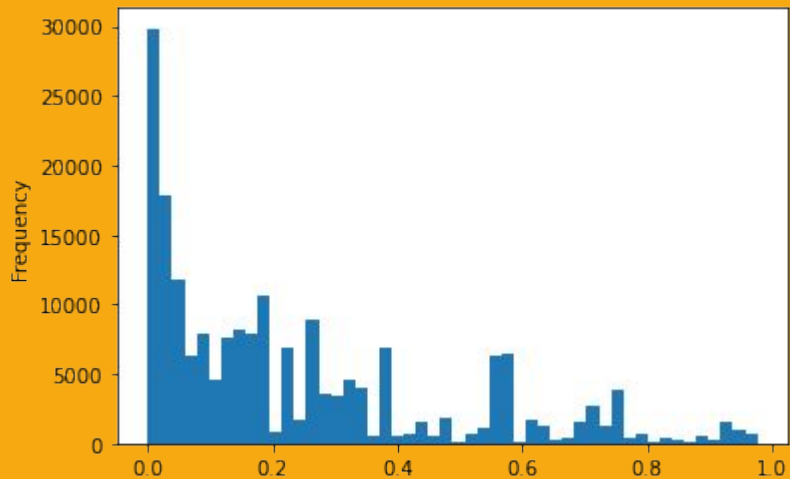
May 2020



Looking at Acousticness (Globally)

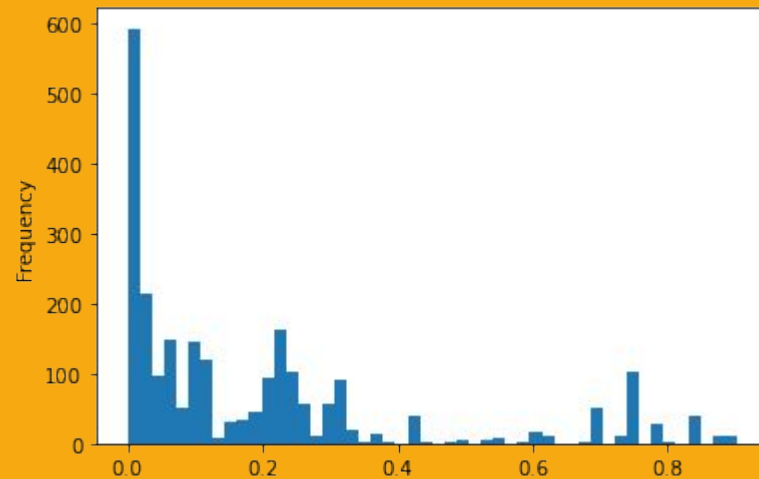
June 2019

Song Frequency for Different Acousticness Levels

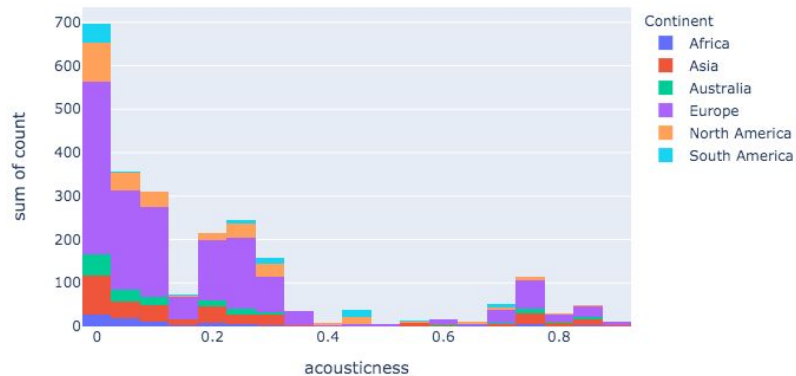


May 2020

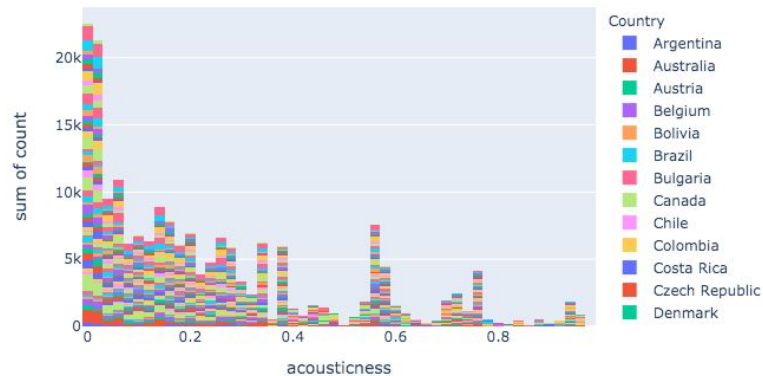
Song Frequency for Different Acousticness Levels



Looking at Acousticness (May 2020 - By Continent)



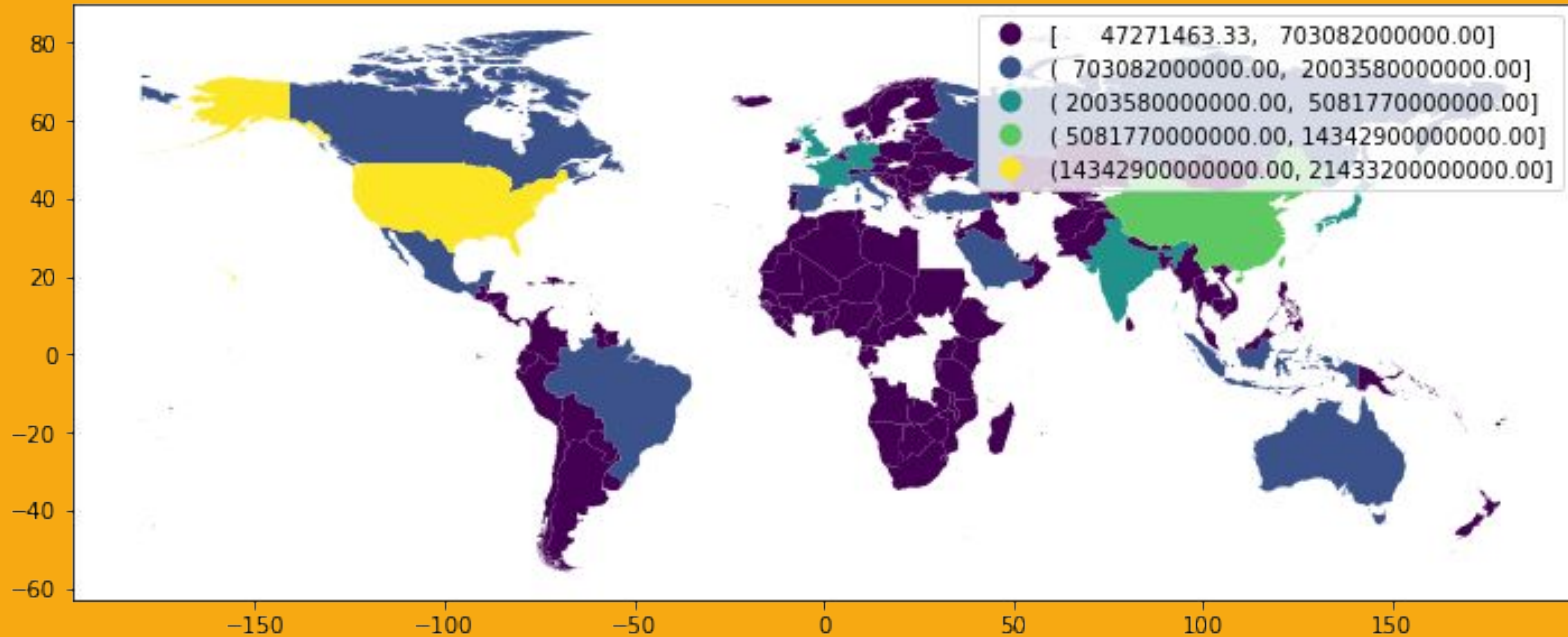
Looking at Acousticness (June 2019 - By Country)



Maps

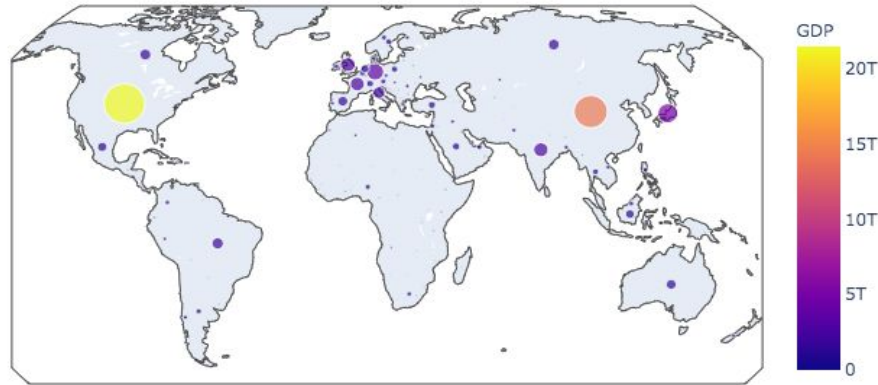
- GDP
- Song Characteristics

Mapping out GDP



Interactive GDP Bubble Map

GDP per Country



Song Characteristics



Danceability

How suitable a track is for dancing



Energy

Perceptual measure of intensity and activity



Loudness

How loud the songs is



Speechiness

Detects the presence of spoken words in a track



Acousticness

Measurement of how natural & acoustic a song is



Instrumentalness

The amount of vocals in the song



Liveness

Probability that the song was recorded with a live audience.

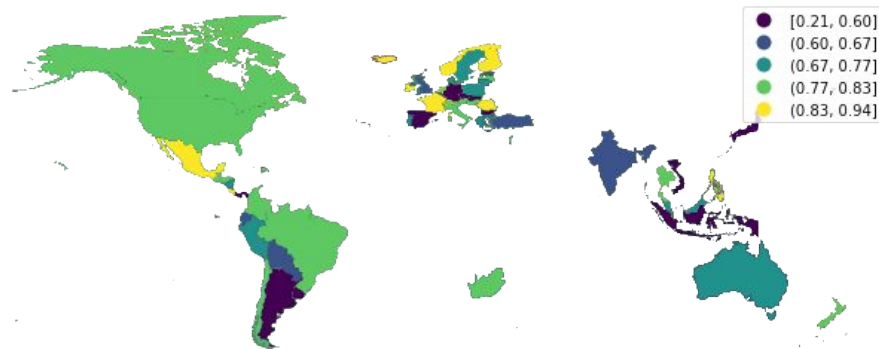


Valence

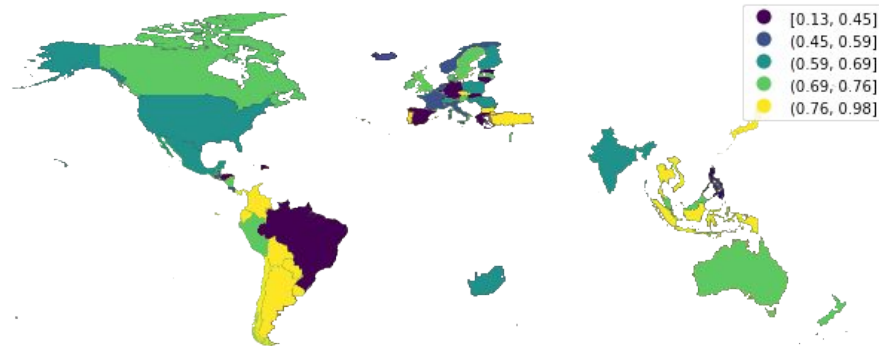
The musical positiveness conveyed

Song Characteristics (Danceability & Energy)

Danceability of Top Songs by Country

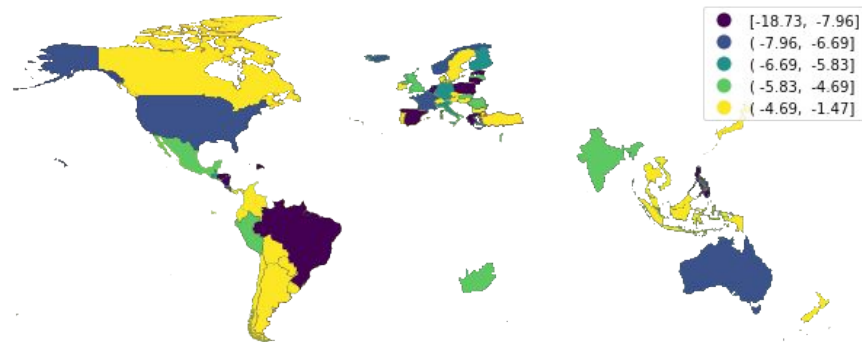


Energy of Top Songs by Country

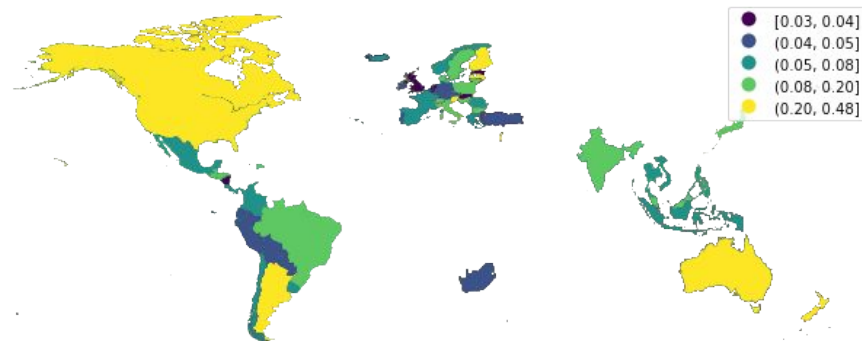


Song Characteristics (Loudness & Speechiness)

Loudness of Top Songs by Country

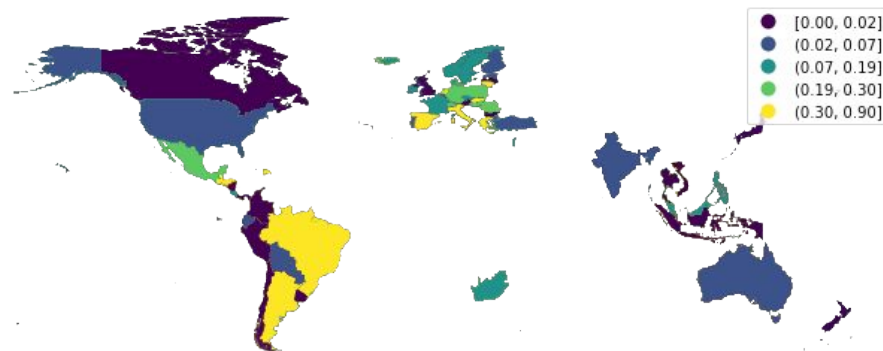


Speechiness of Top Songs by Country

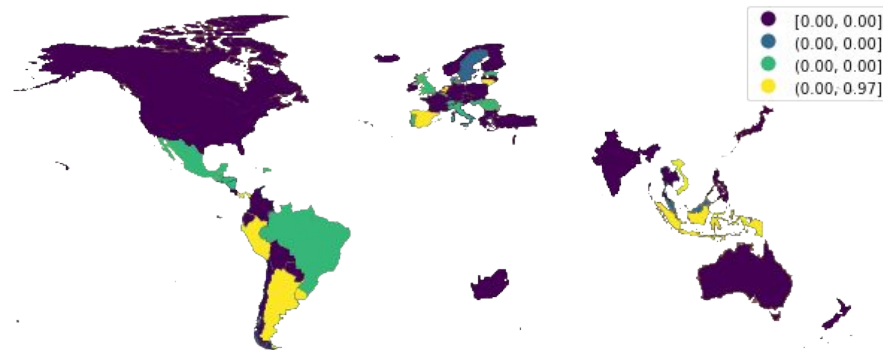


Song Characteristics (Acousticness & Instrumentalness)

Acousticness of Top Songs by Country

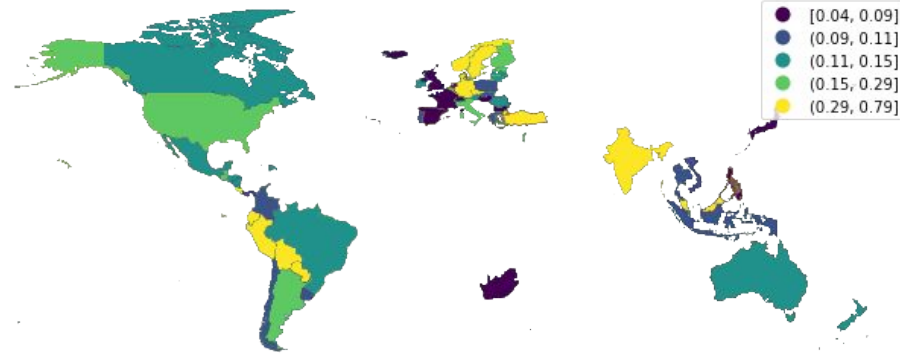


Instrumentalness of Top Songs by Country

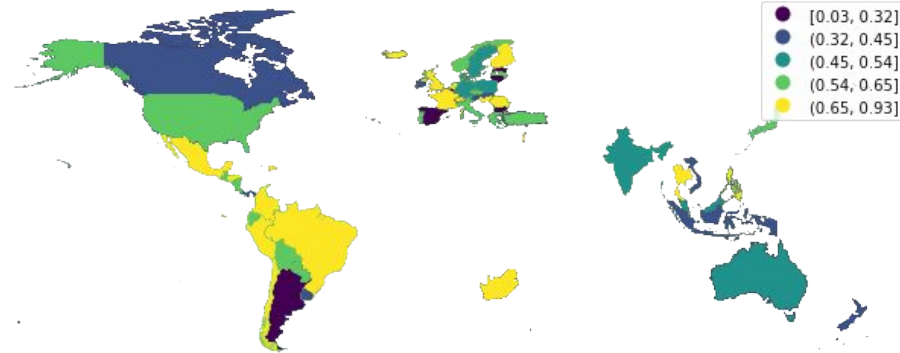


Song Characteristics (Liveness & Valence)

Liveness of Top Songs by Country



Valence of Top Songs by Country



Future Research



- Direct connection between Spotify song characteristics and GDP
- Additional global factors
 - Twitter data
 - Political
 - Educational
 - Language
- Helping artists and improve Spotify user experience

Thank You!

