Global Music Trends
Spotify Data

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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

	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

	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

	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...

	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

Country	FID	ISO	COUNTRYAFF	AFF_ISO	geometry	Continent	Rank	Title	danceability	energy	key	loudness	mode	speechiness	acousticness	instrumentalness	liveness	valence	genre
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

Country	FID	ISO	COUNTRYAFF	AFF_ISO	geometry	Date	Position	Title	danceability	energy	key	loudness	mode	speechiness	acousticness	instrumentalness	liveness	valence	tempo	genre
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 (((-71.85916 -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 (((-71.85916 -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	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

Country	FID	ISO	COUNTRYAFF	AFF_ISO	geometry	Country Code	GDP
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
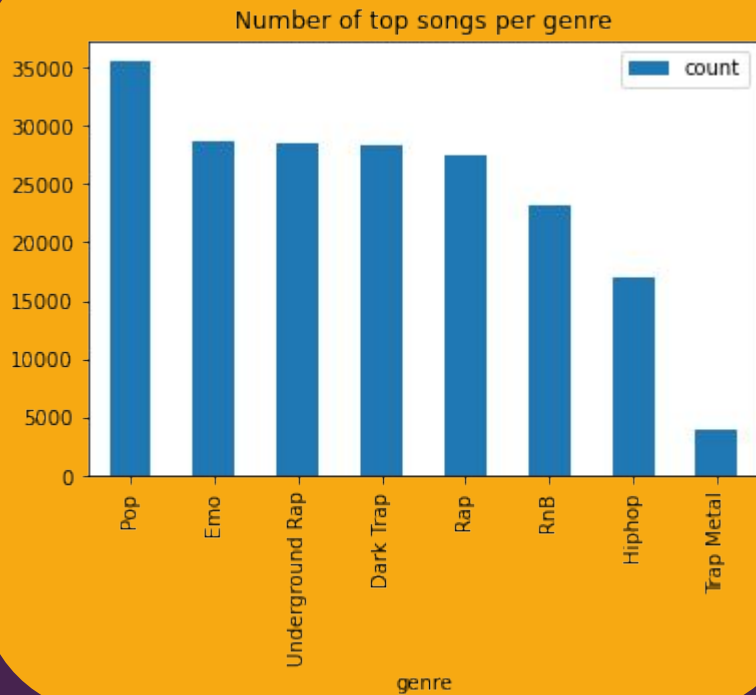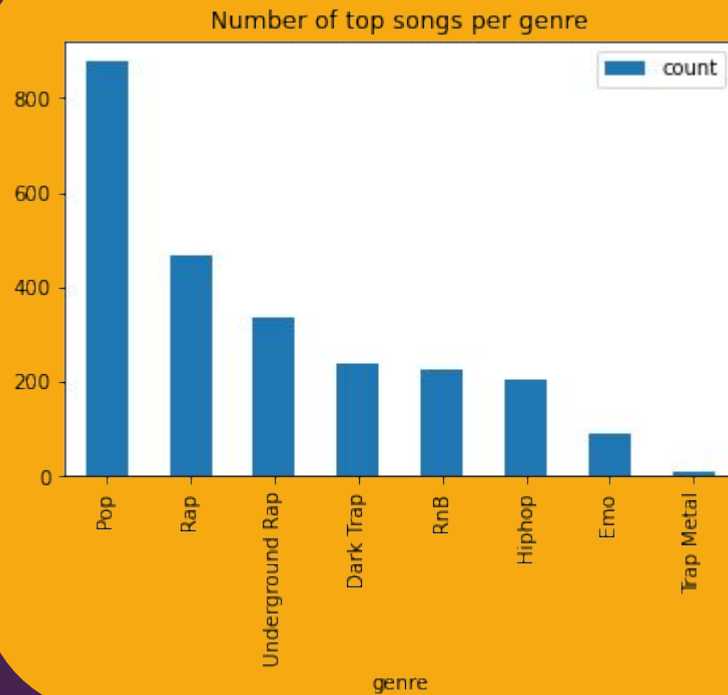
Looking at Accousticness (Globally)

June 2019
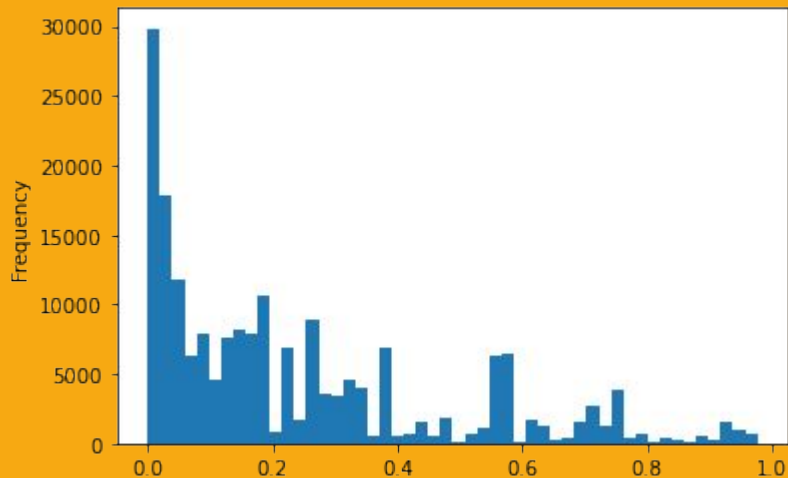
May 2020

Song Frequency for Different Accousticness Levels

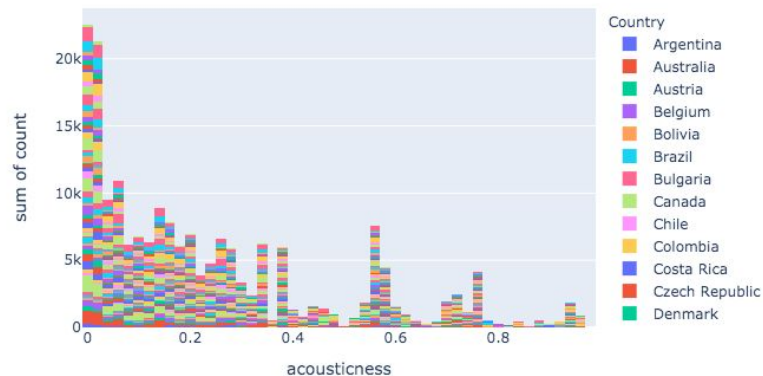Song Frequency for Different Accousticness Levels
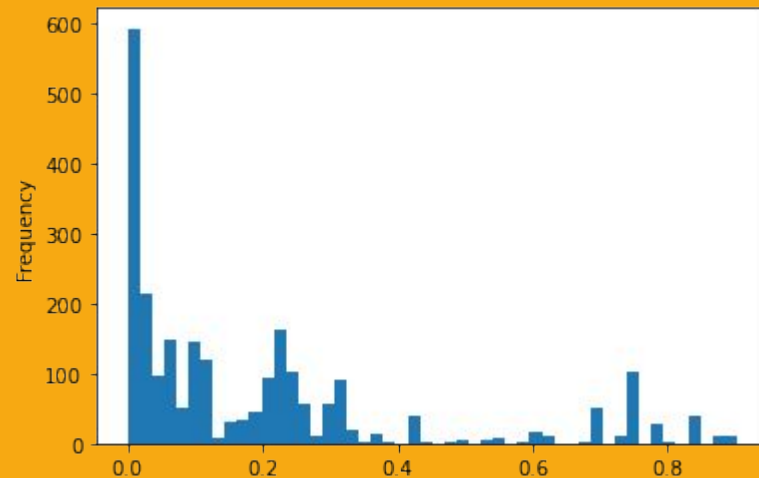
Looking at Accousticness (May 2020 – By Continent)

Looking at Accousticness (June 2019 – By Country)
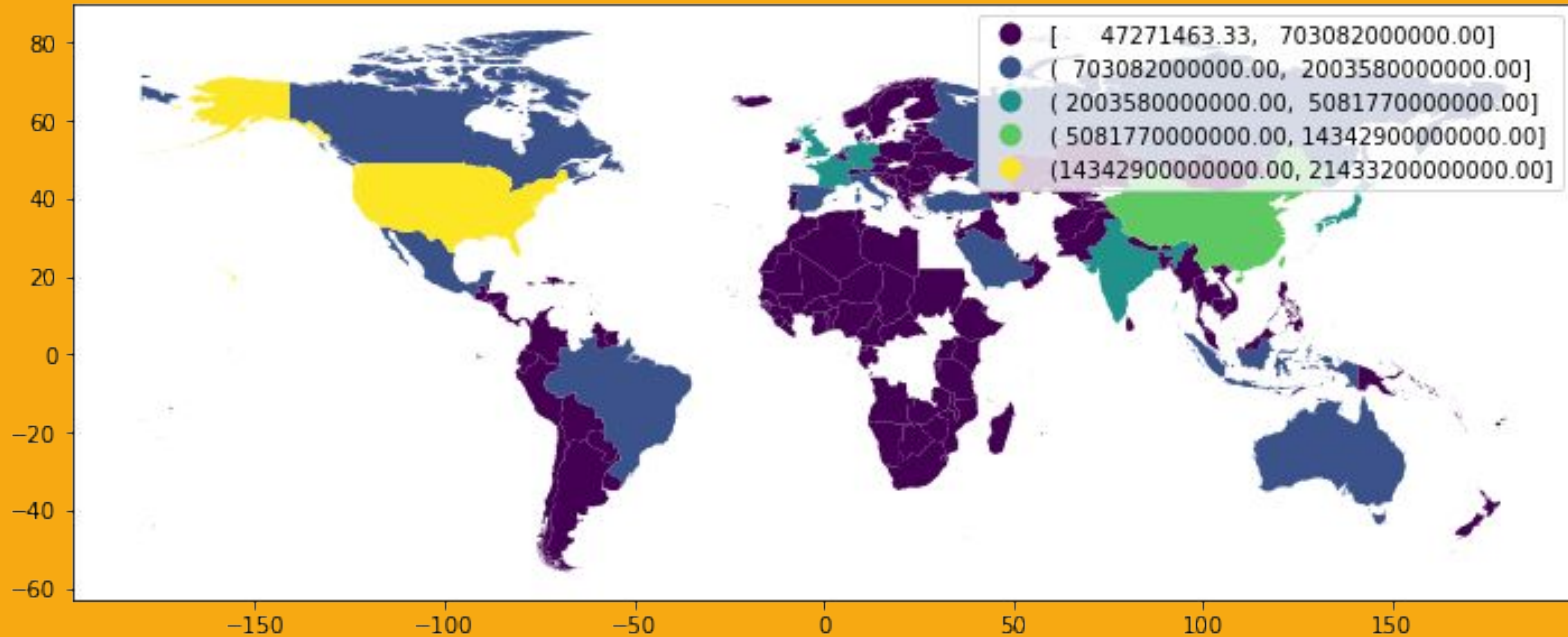

Frequency of Acousticness levels in Top Songs by Continent

Frequency of Acousticness levels in Top Songs by Country

Maps

- GDP

- Song Characteristics

Mapping out GDP

Interactive GDP Bubble Map
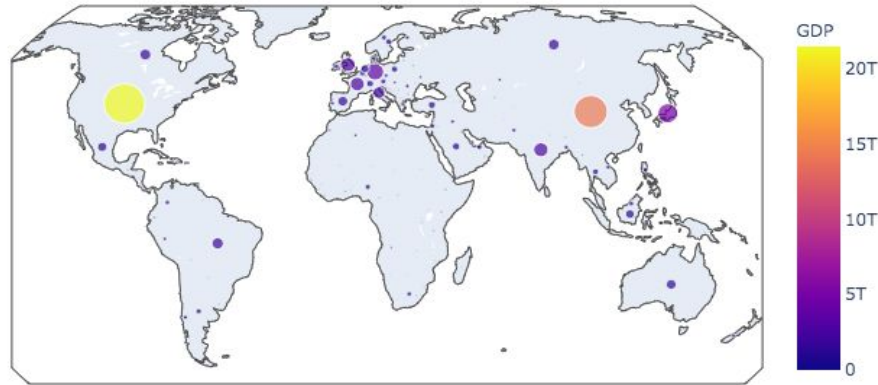
Joining Data

- Spotify + World
- GDP + World

Song Characteristics

Danceability
How suitable a track is for dancing

Loudness
How loud the songs is

Acousticness
Measurement of how natural & acoustic a song is

Liveness
Probability that the song was recorded with a live audience.

Energy
Perceptual measure of intensity and activity

Speechiness
Detects the presence of spoken words in a track

Instrumentalness
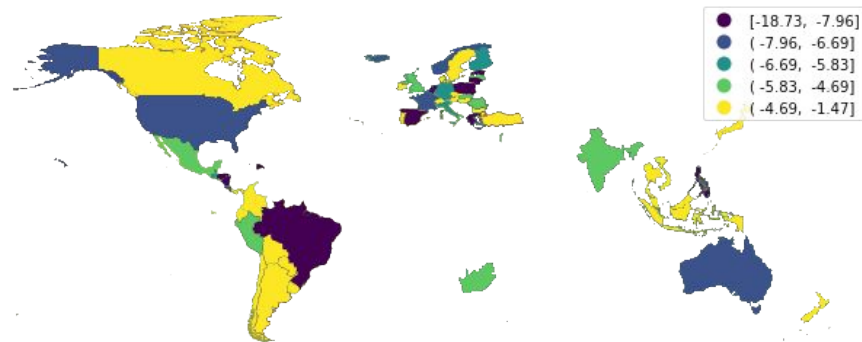The amount of vocals in the song

Valence
The musical positiveness conveyed

Song Characteristics (Danceability & Energy)
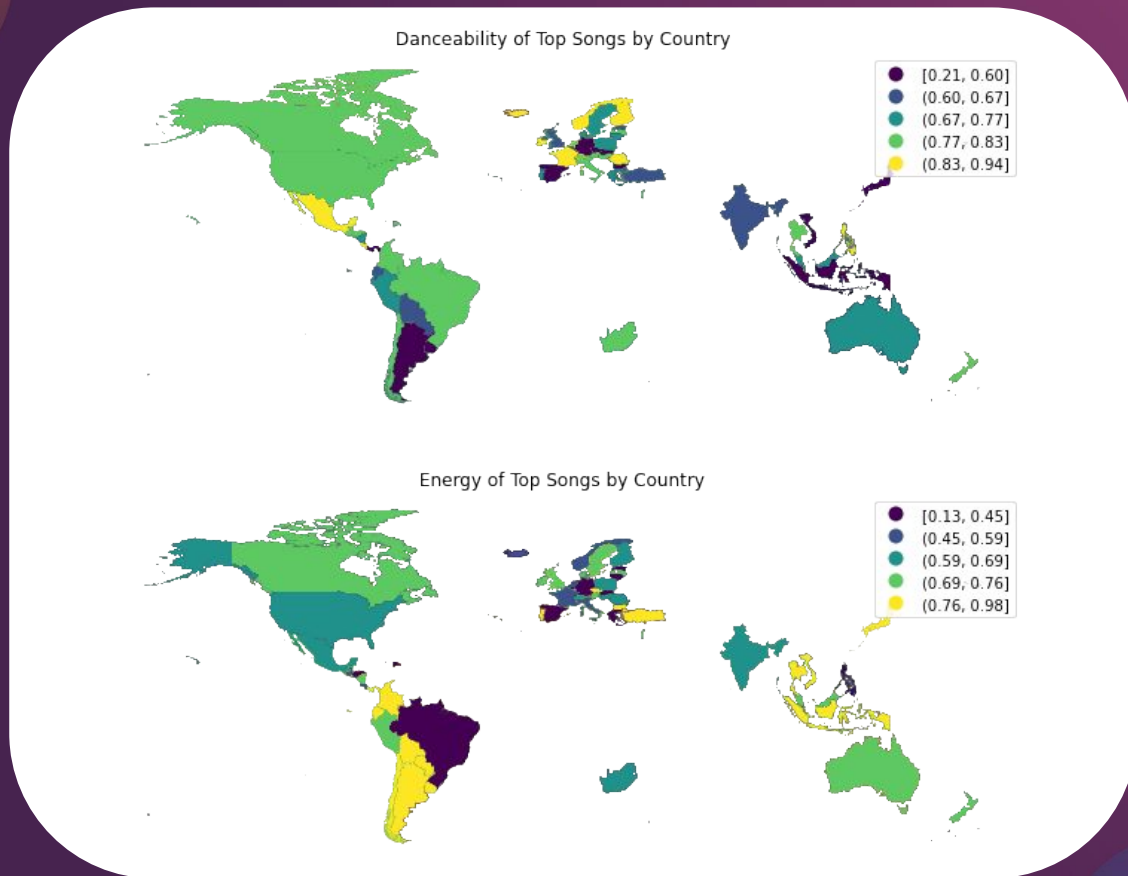
Song Characteristics (Loudness & Speechiness)

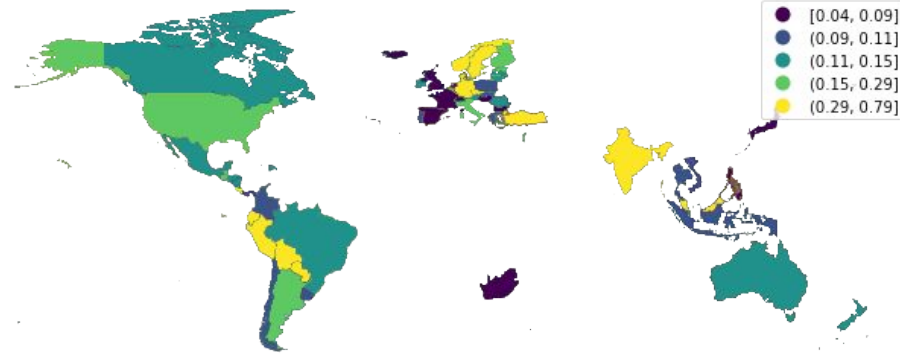Loudness of Top Songs by Country

●	[-18.73, -7.96]
●	(-7.96, -6.69]
●	(-6.69, -5.83]
●	(-5.83, -4.69]
●	(-4.69, -1.47]

Speechiness of Top Songs by Country

●	[0.03, 0.04]
●	(0.04, 0.05]
●	(0.05, 0.08]
●	(0.08, 0.20]
●	(0.20, 0.48]

Song Characteristics (Acousticness & Instrumentalness)
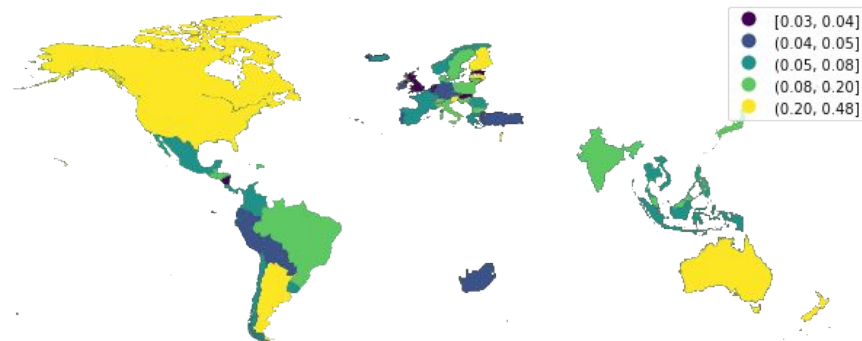
Song Characteristics (Liveness & Valence)

Liveness of Top Songs by Country

[0.04, 0.09]
(0.09, 0.11]
(0.11, 0.15]
(0.15, 0.29]
(0.29, 0.79]

Valence of Top Songs by Country

[0.03, 0.32]
(0.32, 0.45]
(0.45, 0.54]
(0.54, 0.65]
(0.65, 0.93]
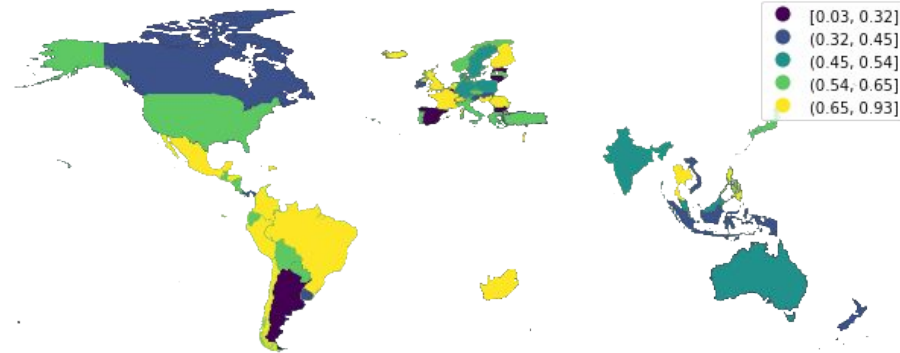
Future Research

- 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!