Spotify Recommendation System

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Goals

Explore which features make a track popular

Create a music recommendation system

Data Set: A Century of Music (1920-2020)

19 columns x 174,389 rows

Song Attributes:
Artist, Song name, ID, duration, year
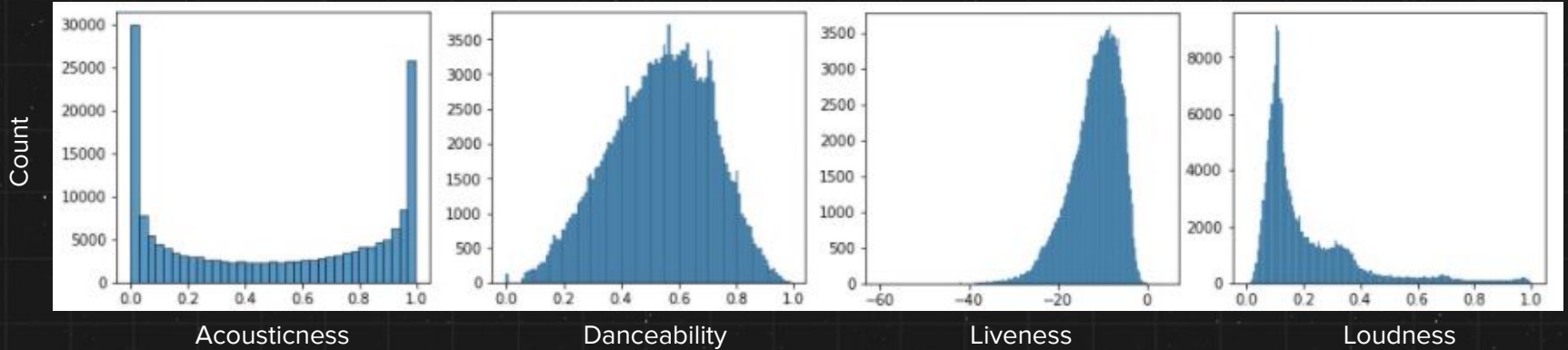
Popularity (0 -100)

Track Characteristics:
Energy, Danceability, Valence,
Acousticness, Instrumentalness,
Tempo, Key, Valence, etc.

	acousticness	artists	danceability	duration_ms	energy	explicit	id	instrumentalness	key	liveness	loudness	mo
0	0.991000	['Mamie Smith']	0.598	168333	0.224	0	0cS0A1fUEUd1EW3FcF8AEI	0.000522	5	0.3790	-12.628	
1	0.643000	["Screamin' Jay Hawkins"]	0.852	150200	0.517	0	0hbkKFIJm7Z05H8Zl9w30f	0.026400	5	0.0809	-7.261	
2	0.993000	['Mamie Smith']	0.647	163827	0.186	0	11m7laMUgmOKqI3oYzuhne	0.000018	0	0.5190	-12.098	
3	0.000173	['Oscar Velazquez']	0.730	422087	0.798	0	19Lc5SfJJ5O1oaxY0fpwfh	0.801000	2	0.1280	-7.311	
4	0.295000	['Mixe']	0.704	165224	0.707	1	2hJjbsLCytGsnAHfdsLejp	0.000246	10	0.4020	-6.036	
...	...	...	...	...	...	...	...	...	...	...	...	
174384	0.009170	['DJ Combo', 'Sander-7', 'Tony T']	0.792	147615	0.866	0	46LhBf6TvYjZU2SMvGZAbn	0.000060	6	0.1780	-5.089	
174385	0.795000	['Alessia Cara']	0.429	144720	0.211	0	7tue2Wemjd0FZzRtDrQFZd	0.000000	4	0.1960	-11.665	
174386	0.806000	['Roger Fly']	0.671	218147	0.589	0	48Qj61hOdYmUCFJbpQ29Ob	0.920000	4	0.1130	-12.393	
174387	0.920000	['Taylor Swift']	0.462	244000	0.240	1	1gcyHQpBQ1lfXGdhZmWrHP	0.000000	0	0.1130	-12.077	
174388	0.239000	['Roger Fly']	0.677	197710	0.460	0	57tgYkWQTNHVFEt6xDKKZj	0.891000	7	0.2150	-12.237	

174389 rows × 19 columns

Histograms

Acousticness   Danceability   Liveness   Loudness

Big Picture Through the Years
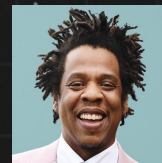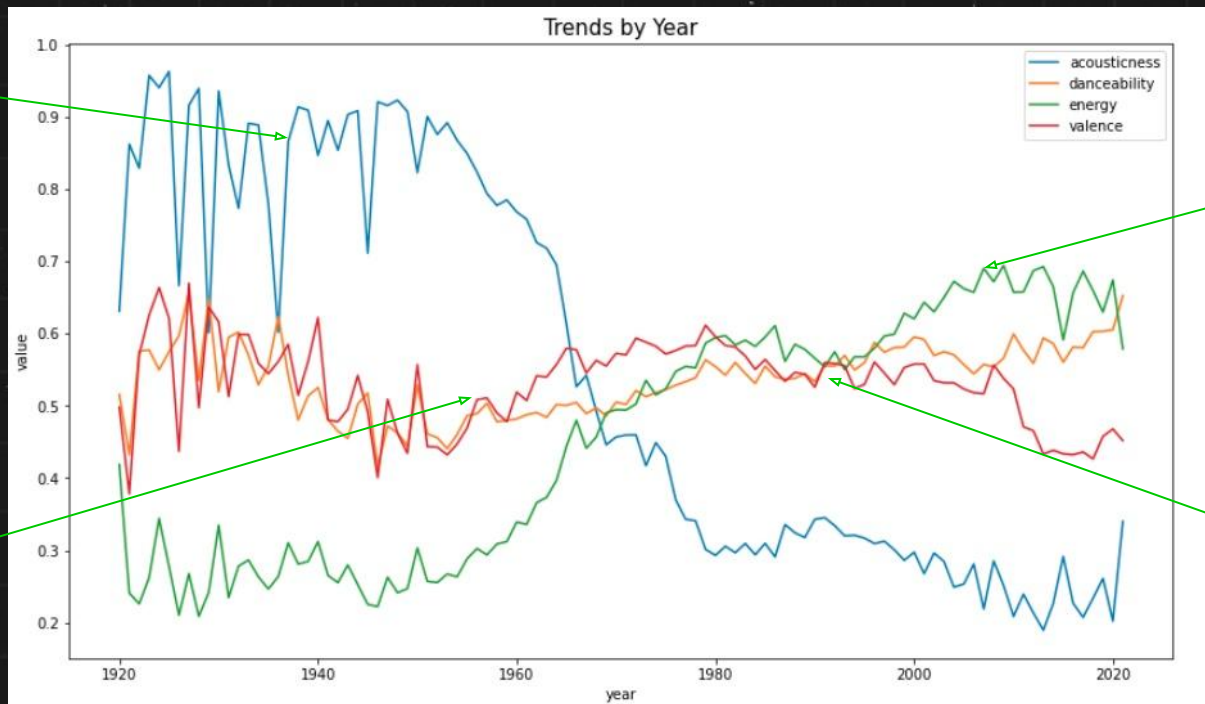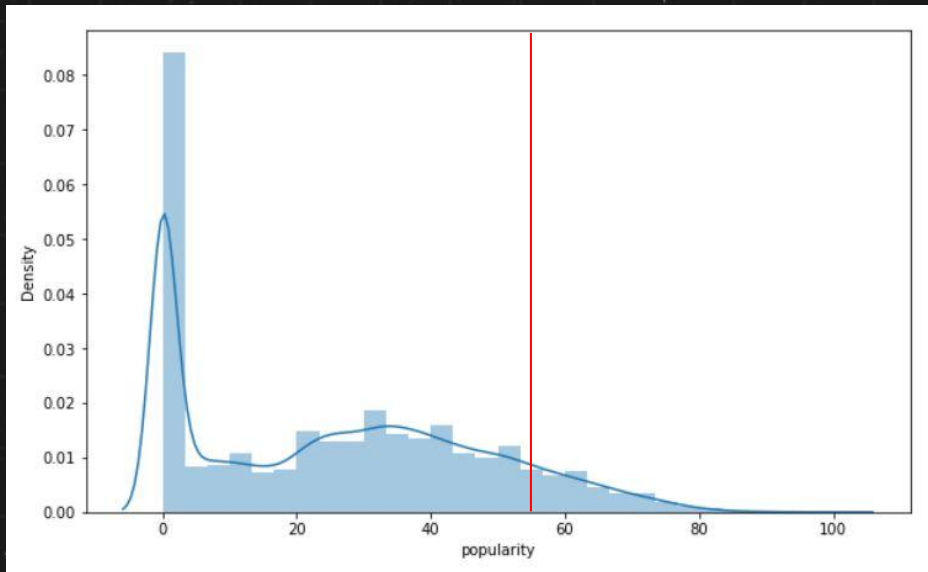
Popular and Unpopular

Threshold:
'popularity' == 56 (90th percentile)

Popular:
'popularity' >= 56 ('target' == 1)

Unpopular:
'popularity' < 56 ('target' == 0)

Top 5 Popular Artists:
1. The Beatles
2. Frank Sinatra
3. Elvis Presley
4. Fleetwood Mac
5. The Rolling Stones

Popular and Unpopular

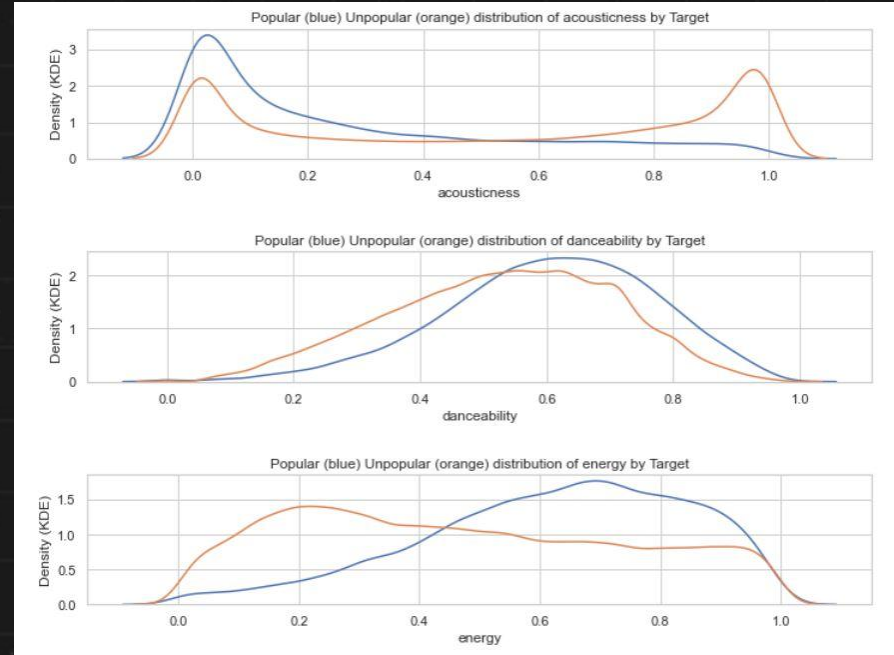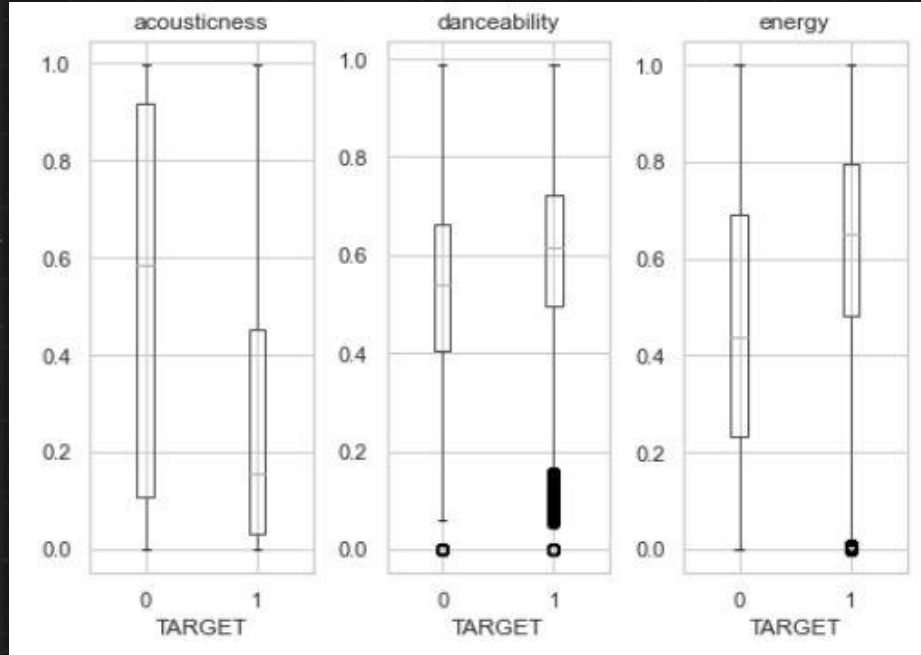|	acousticness	danceability	duration_ms	energy	explicit	instrumentalness	key	liveness	loudness	mode	popularity
popularity	-0.4	0.12	0.025	0.33	0.15	-0.3	0.002	-0.079	0.34	0.0077	1
speechiness	-0.022	0.24	-0.098	-0.11	0.35	-0.13	0.0096	0.12	-0.21	-0.041	-0.2
tempo	-0.22	0.0055	-0.0082	0.27	0.0081	-0.069	0.005	0.0086	0.22	0.0024	0.095
valence	-0.17	0.54	-0.18	0.33	-0.0093	-0.22	0.026	-0.0058	0.3	0.022	0.063
year	-0.61	0.16	0.11	0.54	0.15	-0.11	0.019	-0.012	0.47	-0.049	0.51

Correlation:
Popularity vs Loudness 0.33
Popularity vs Energy 0.34
Popularity vs Acousticness -0.4
Popularity vs Instrumentalness -0.3

Popular and Unpopular

Music Recommendation System

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Music Recommendation Software
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1 - Acousticness
2 - Danceability
3 - Energy
4 - Instrumentalness
5 - Liveness
6 - Speechiness
7 - Valence

Please select a song characteristics to search by:
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