Natural Language Processing Case Study

What it takes to be in BillBoards Top 100

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Overview

- Over the past two months, I've tasked myself in identifying and creating a model which helps predict and in interpret if the lyrics to a song are likely to get to you into the top 100 of the Billboard (BB) charts

- Along with this we'll be identifying trends within the music industry that correlate to being in the BB Top 100

- 15k+ data entries from 1959-2019

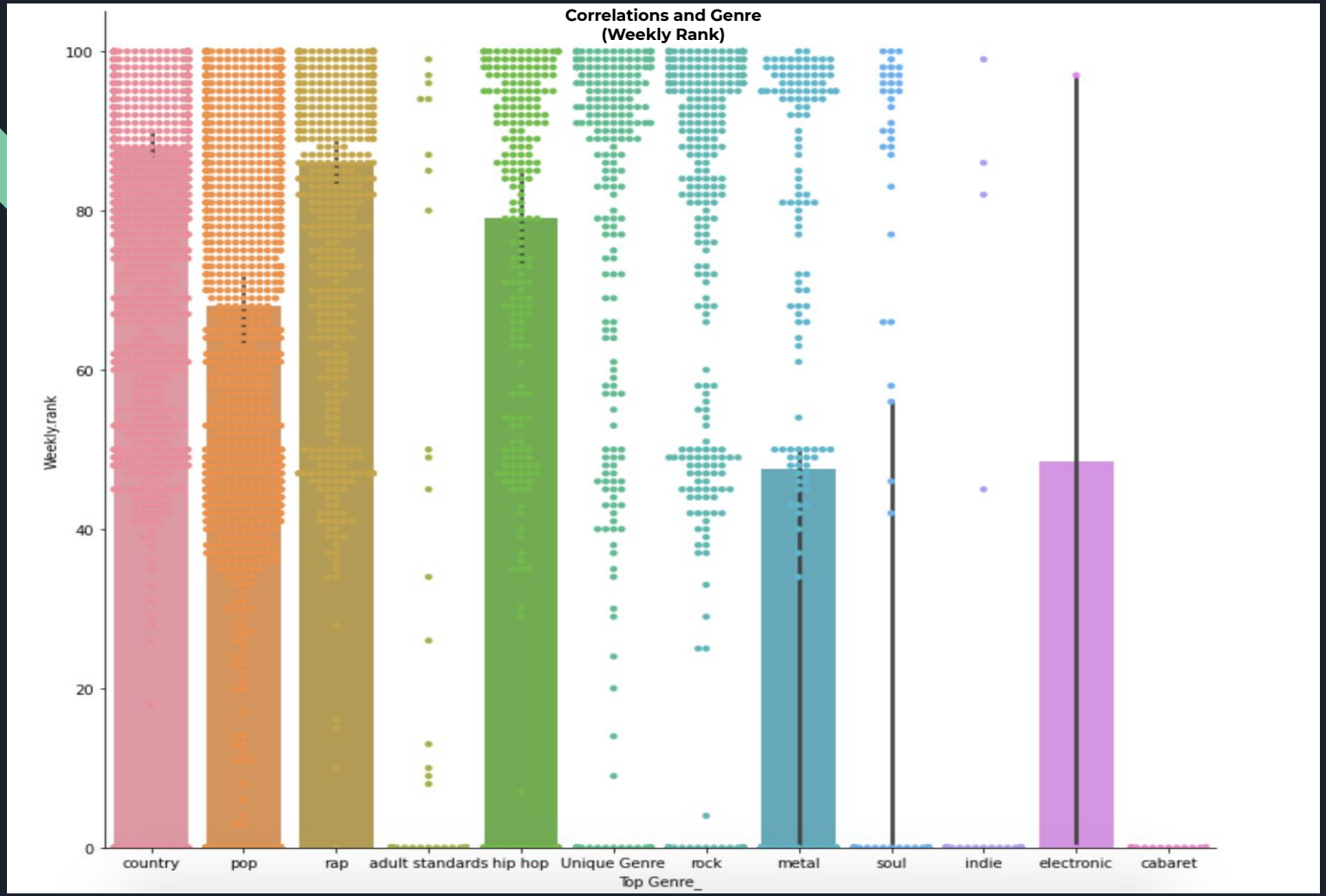
Agenda

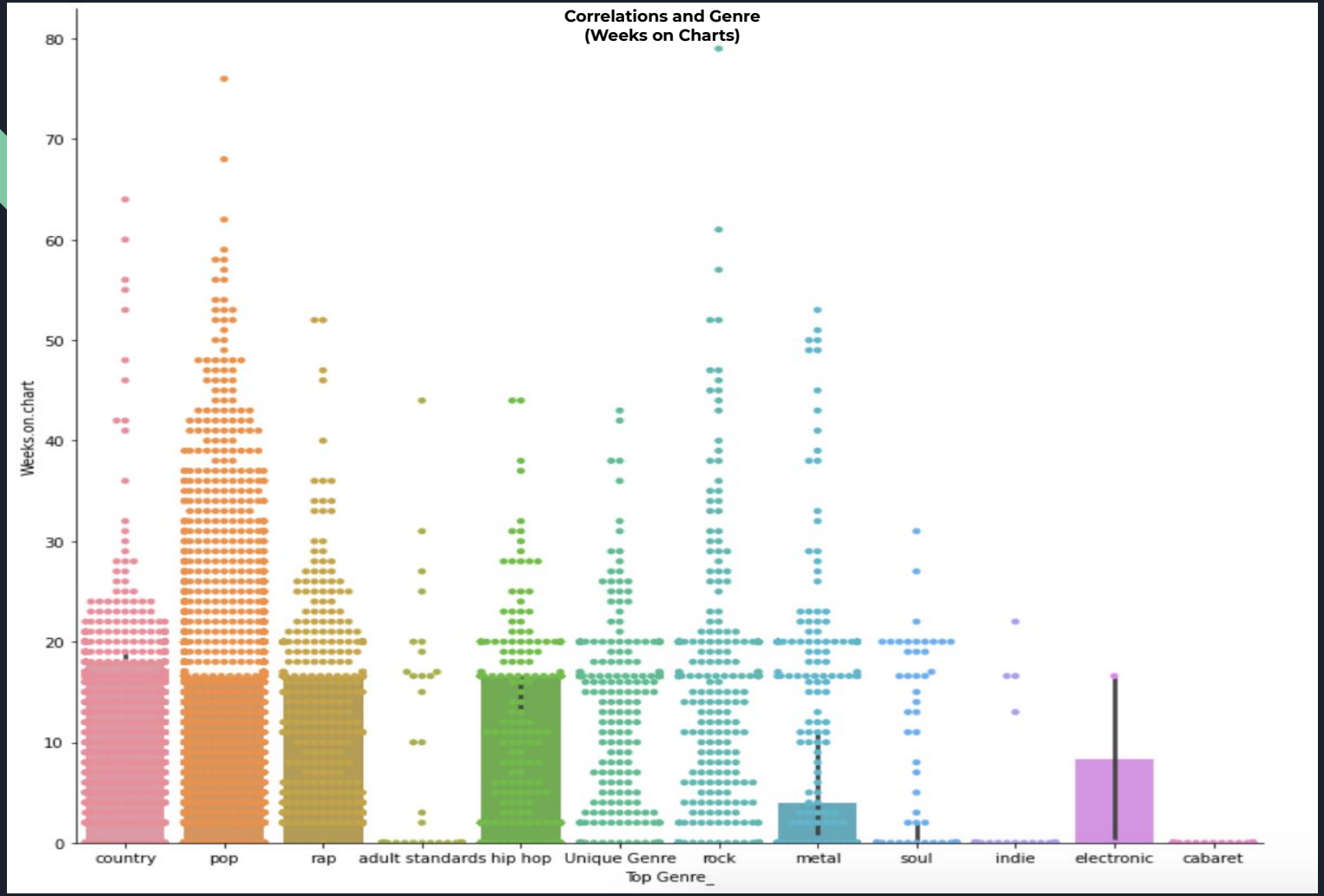
- Common Lyrics
- Correlation & Genre
- Model

Common Words

Common Words Continued

	Lyric	Freq
0	(oh, oh)	0.001056
1	(yeah, yeah)	0.000870
2	(la, la)	0.000575
3	(na, na)	0.000486
4	(zau, al-makan)	0.000378
5	(i'm, gonna)	0.000373
6	(mme, de)	0.000350
7	(let, go)	0.000340
8	(love, love)	0.000334
9	(de, guermantes)	0.000299
10	(feel, like)	0.000287
11	(hey, hey)	0.000278
12	(aaron, swartz)	0.000257
13	(know, i'm)	0.000256
14	(oh, yeah)	0.000251
15	(de, charlus)	0.000239
16	(cause, i'm)	0.000230
17	(united, states)	0.000228
18	(new, york)	0.000213
19	(know, know)	0.000209


Correlations and Genre
(Weekly Rank)
Weekly.rank
100
80
60
40
20
0
country
pop
rap
adult standards
hip hop
Unique Genre
rock
metal
soul
indie
electronic
cabaret
Top Genre_


Correlations and Genre
(Weeks on Charts)
Weeks.on.chart
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country
pop
rap
adult standards
hip hop
Unique Genre
rock
metal
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indie
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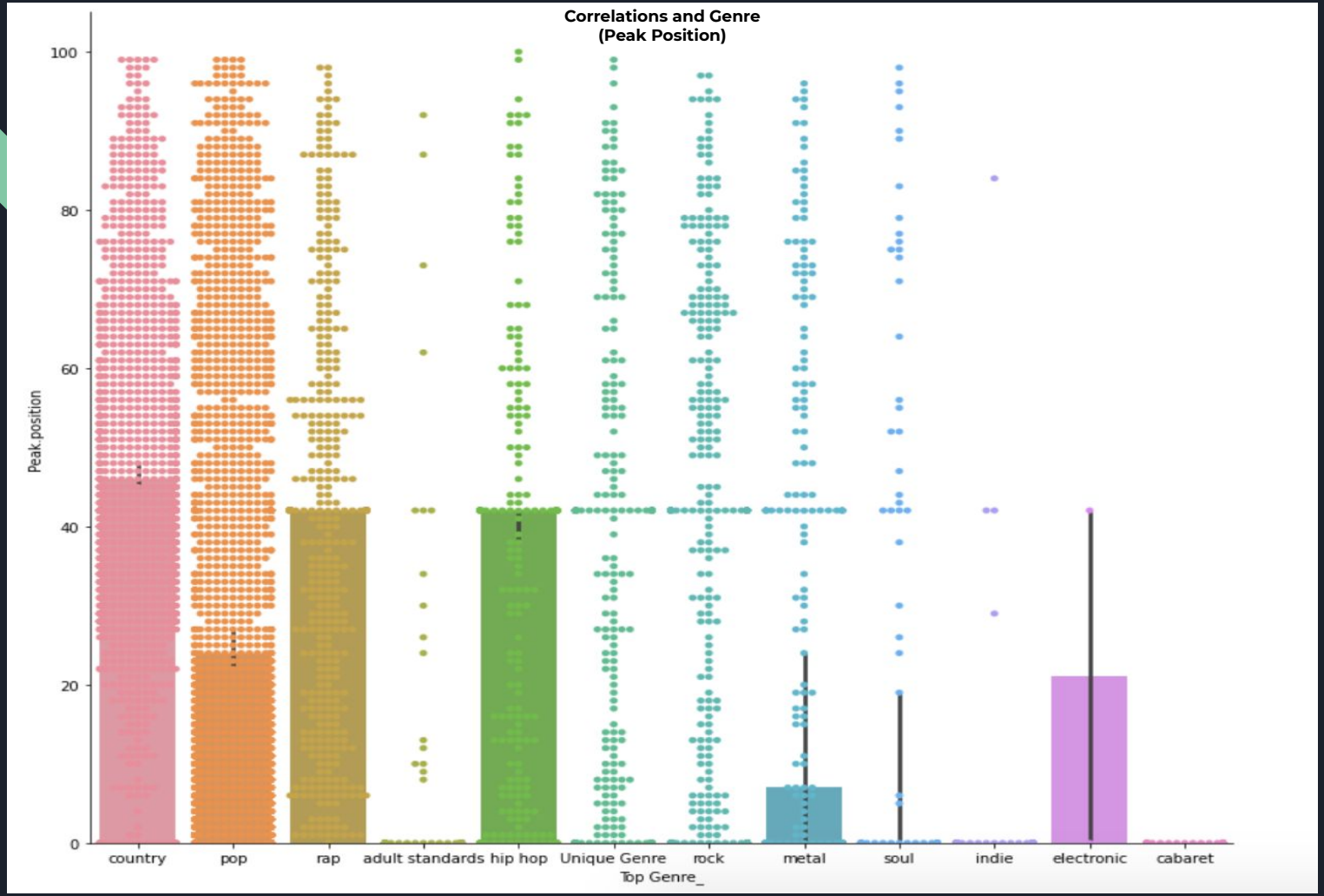
cabaret
Top Genre_


Correlations and Genre
(Peak Position)
Peak.position
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adult standards
hip hop
Unique Genre
rock
metal
soul
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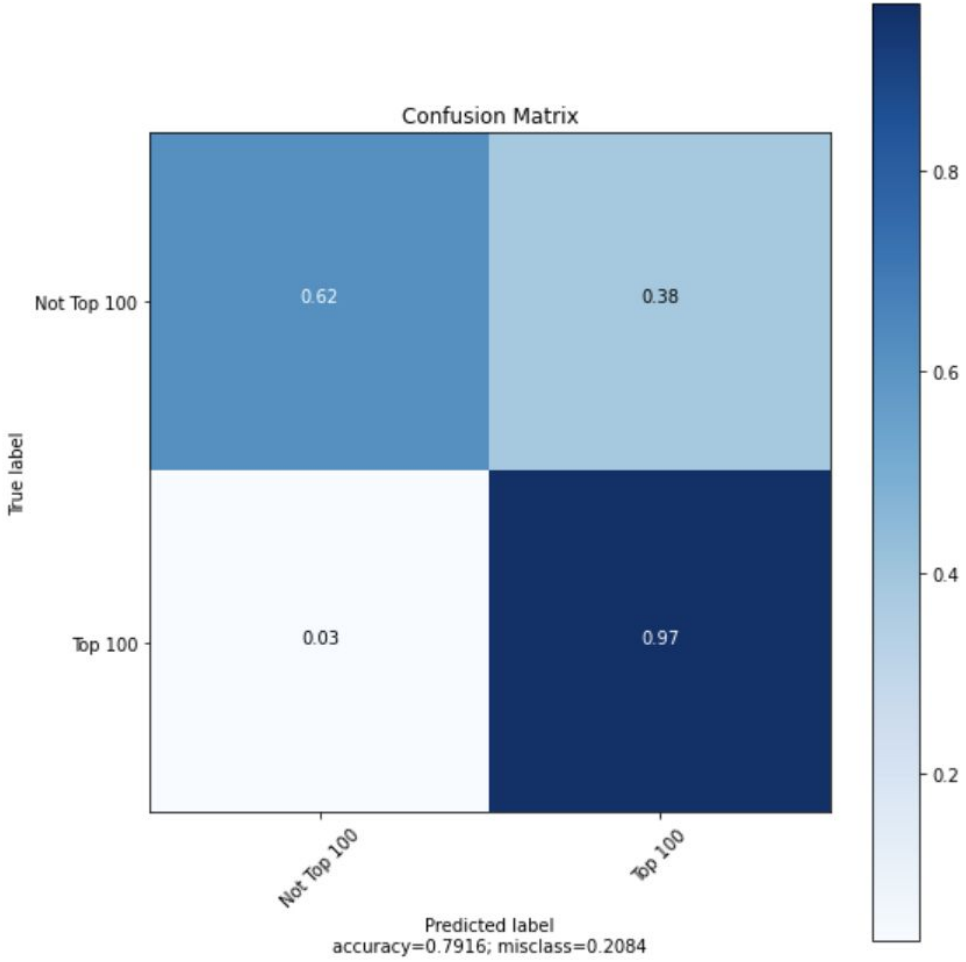
electronic
cabaret
Top Genre_

Our Model


Confusion Matrix
Not Top 100
Top 100
0.62
0.38
0.03
0.97
True label
Not Top 100
Top 100
Predicted label
accuracy=0.7916; misclass=0.2084
0.8
0.6
0.4
0.2

Recommendations

- **Stay within Country, Rap / Hip-Hop and Pop (High Barrier to Entry)**
- **Have catchy hooks and finishes to your songs**
- **Talk about Love, use the word “Sh*t”**

Future Work

- View Data by the decades and how they trended
- Dive deeper into Genre rather than Lyrics.

Thank You

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