



by Jay Park



SONG LYRICS ANALYSIS

Based on the
Billboard Year-End
Hot 100 Singles Chart

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EVALUATING
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Analyze popular U.S.
song lyrics from the 90s
to 2010s



DATA ACQUISITION & TOPIC MODELING

BeautifulSoup


GENIUS

- ♪ Used **Billboard** Year-End Charts
- ♪ Scraped 3000 song lyrics (30 years)
 - ♪ 2671 songs after cleaning
- ♪ TF-IDF and NMF for topic modeling

 pandas

 scikit
learn


NLTK

TOPIC 1: “Dreams”

TOPICS



WORDS

believe, dream, stay,
friend, gone, try, forever,
better, true, long, home,
wrong



CHARACTERISTICS

Often heartwarming,
optimistic, and wishful.
Emotive expressions
abound.



EXAMPLES

We Belong Together
(Mariah Carey)

Some Nights
(fun.)

This I Promise You
(’N Sync)

TOPIC 2: “Expletives/Gansta”

TOPICS



WORDS

ni***, bi***, sh**,
fu**, ayy, money,
gon, real, bad, lil,
h**, big, hit



CHARACTERISTICS

Lots of expletives, much
talk about being young,
hot, and rich.



EXAMPLES

Gummo
(6ix9ine)

Cash Sh**
(Megan Thee Stallion ft. DaBaby)

I Don't Fu** with You
(Big Sean ft. E-40)

TOPIC 3: “Passion/Love”

TOPICS



WORDS

tonight, alright,
waiting, tomorrow,
fight, party, kiss, drink,
tight, inside, dancing,
touch



CHARACTERISTICS

Suggestive language
and talks of clubbing,
drinking, and staying up
all night.



EXAMPLES

Give Me Everything
(Pitbull ft. Ne-Yo, Afrojack, Nayer)

Teenage Dream
(Katy Perry)

Animal
(Neon Trees)

TOPIC 4: “Dance”

TOPICS



WORDS

dance, body, shake,
rock, everybody, party,
stop, turn, floor, play,
music, round



CHARACTERISTICS

Dance, dance, dance. And
dance some more.



EXAMPLES

Can't Stop the Feeling!
(Justin Timberlake)

Party Rock Anthem
(LMFAO)

Just Lose It
(Eminem)

TOPIC 5: “Reminisce”

TOPICS



WORDS

remember, used,
memory, forget, gave,
bring, fell, saying,
wish, hurt, walk, bye



CHARACTERISTICS

Singer makes you
wonder if you have
amnesia.



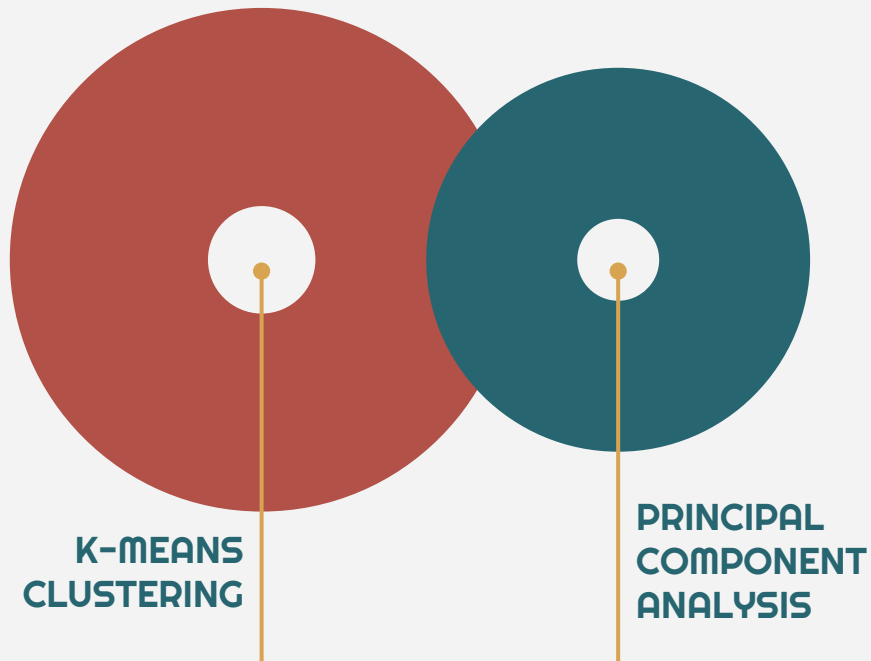
EXAMPLES

Do You Remember
(Phil Collins)

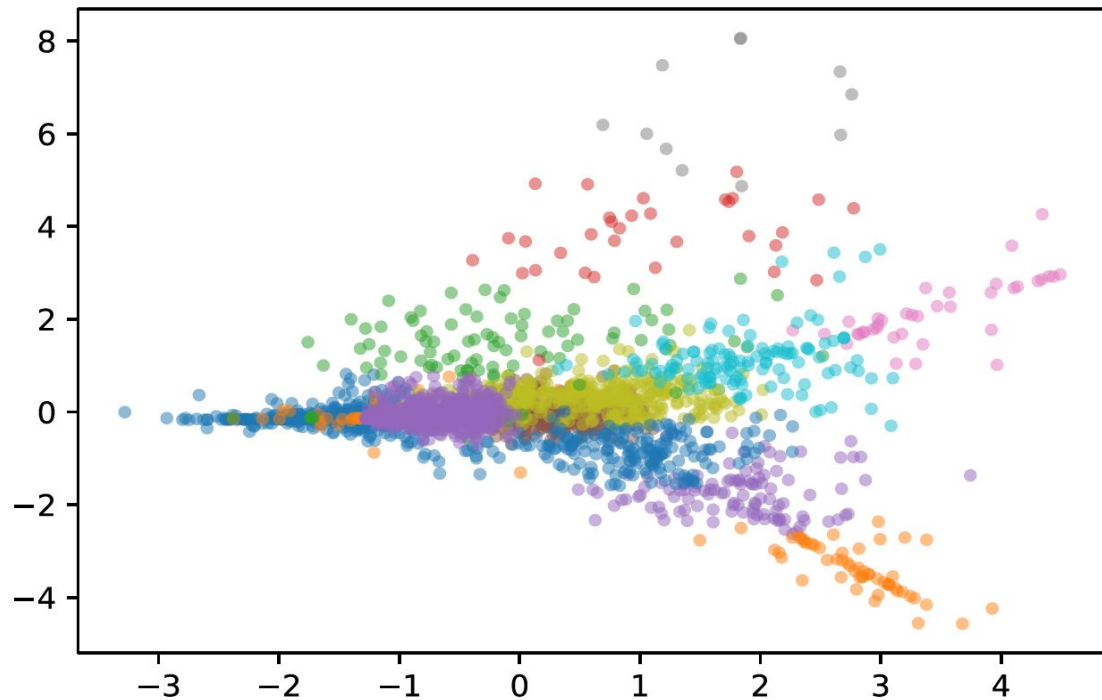
I'll Remember
(Madonna)

Someone Like You
(Adele)

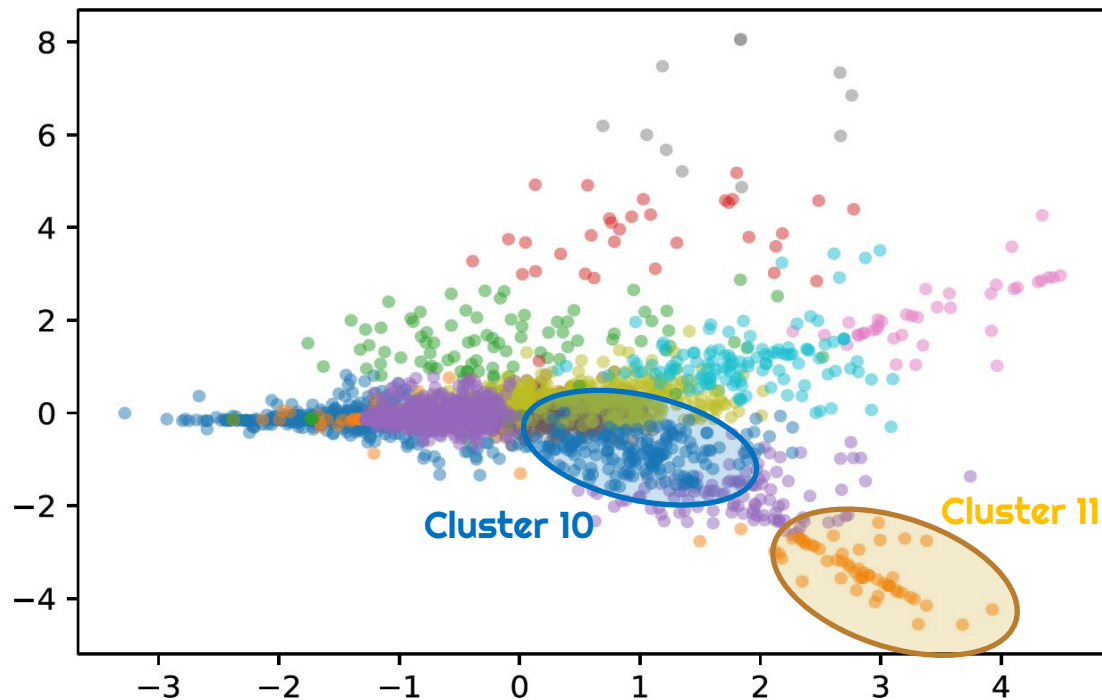
KMEANS CLUSTERING & PCA



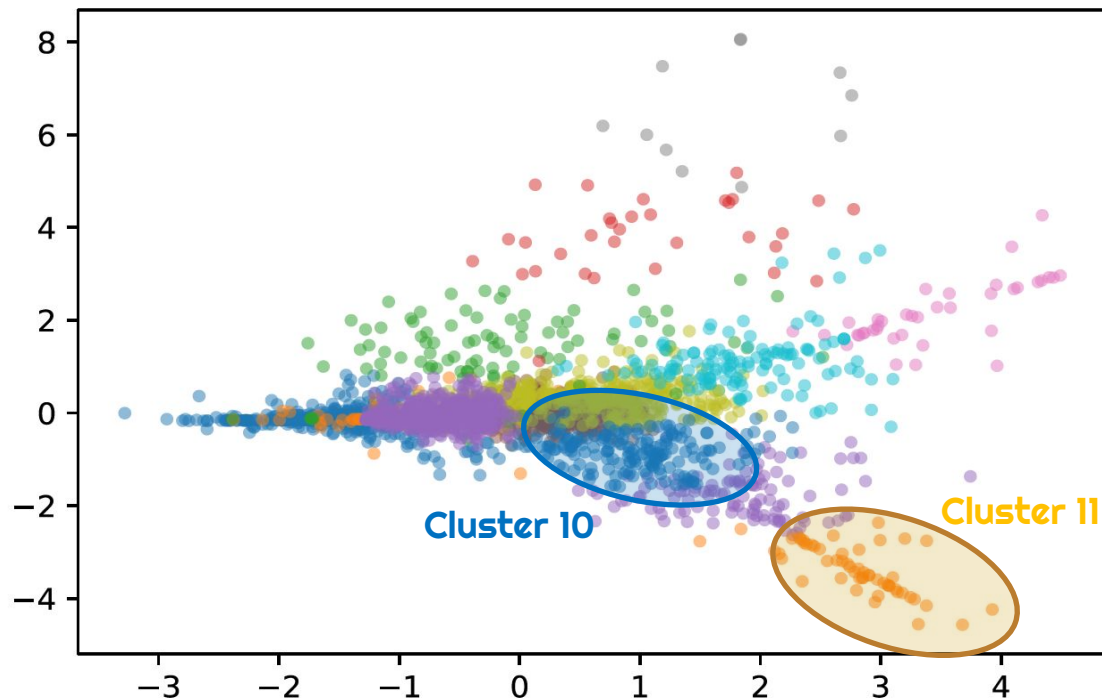
**KMEANS
CLUSTERING
& PCA**



**KMEANS
CLUSTERING
& PCA**



KMEANS CLUSTERING & PCA



Cluster 11

I Don't Fu** With You
(Big Sean ft. E-40)

Bi*** Better Have My Money
(Rihanna)

The Motto
(Drake)

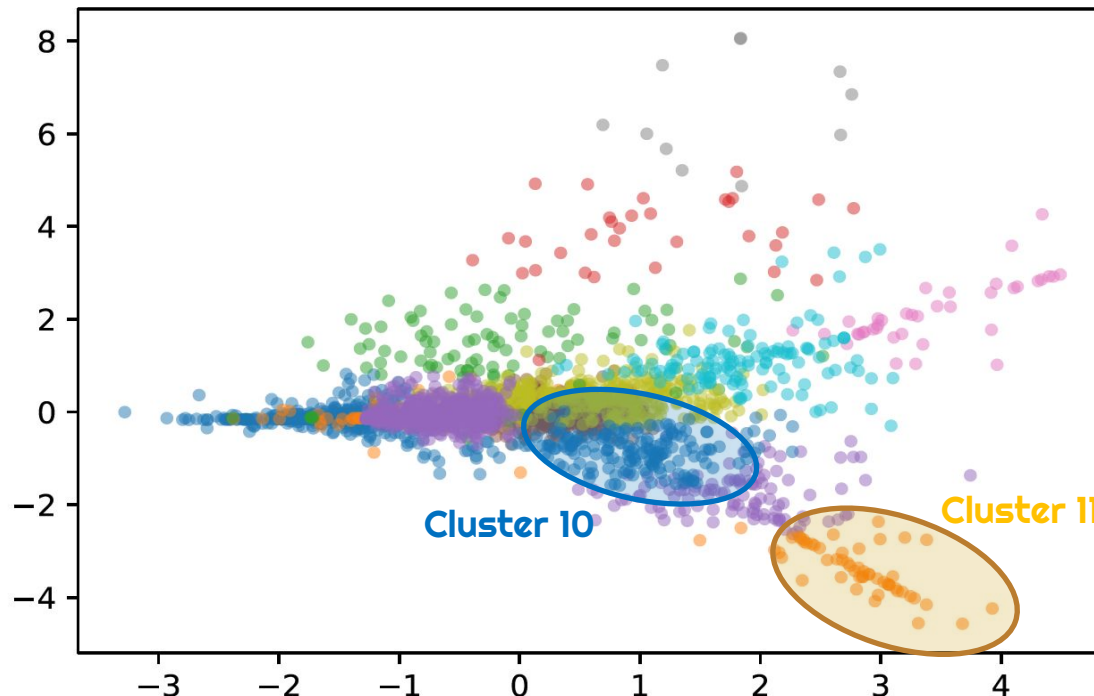
KMEANS CLUSTERING & PCA

Cluster 10

Hollaback Girl
(Gwen Stefani)

Paper Planes
(M.I.A.)

Empire State of Mind
(Jay-Z ft. Alicia Keys)



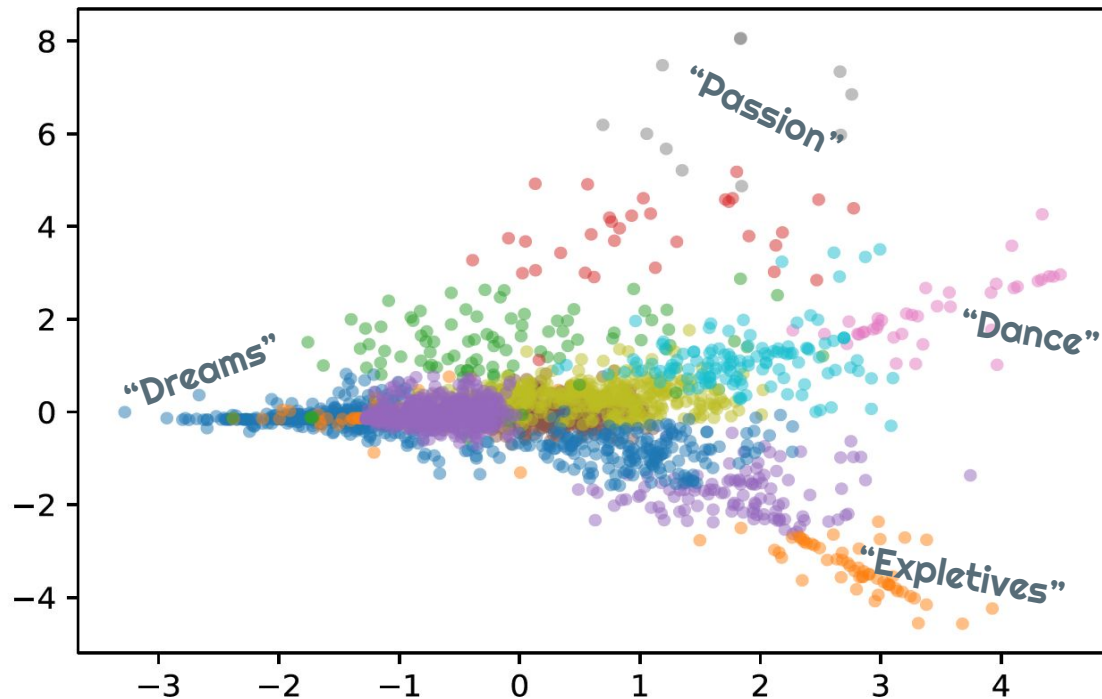
Cluster 11

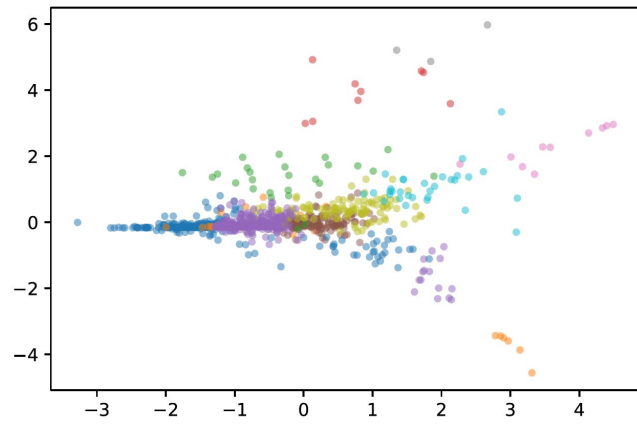
I Don't Fu** With You
(Big Sean ft. E-40)

Bi*** Better Have My Money
(Rihanna)

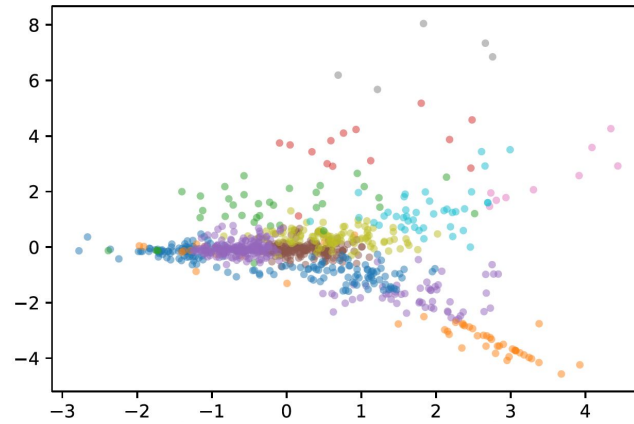
The Motto
(Drake)

**KMEANS
CLUSTERING
& PCA**





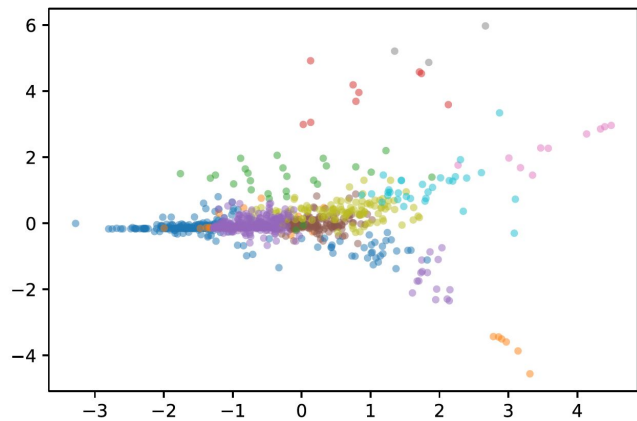
1990s



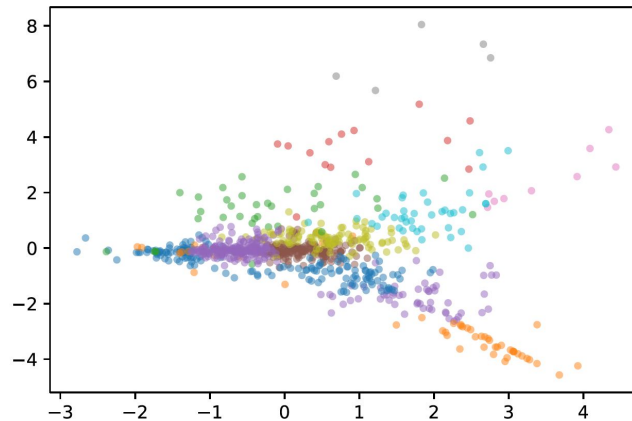
2010s

**KMEANS
CLUSTERING
& PCA**

KMEANS CLUSTERING & PCA



1990s



2010s

Cluster 11



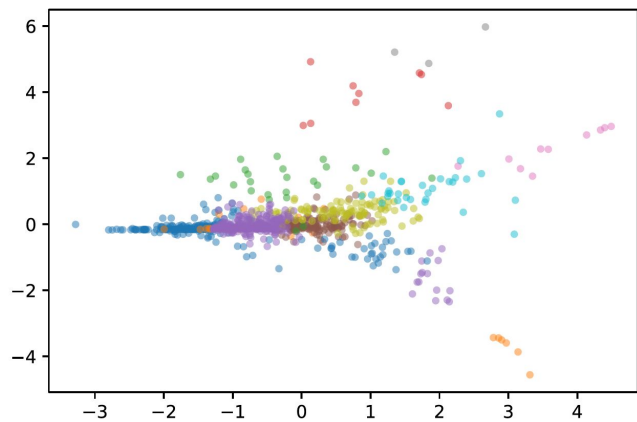
600%

Cluster 3

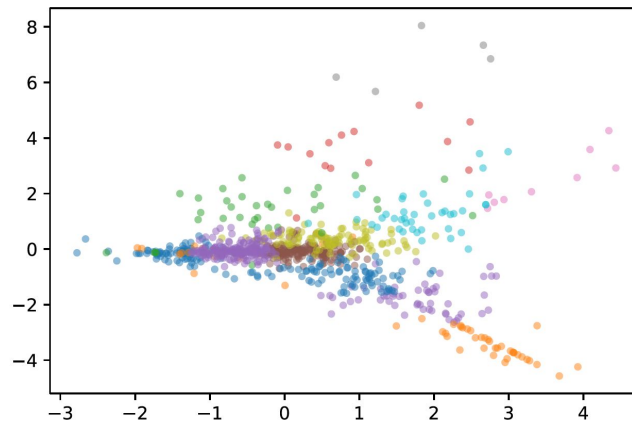


72%

KMEANS CLUSTERING & PCA



1990s



2010s

Cluster 11
(songs heavy on the
'Expletives/Gangsta' topic)



600%

Cluster 3
(songs heavy on the
'Reminisce' topic)



72%



CONCLUSIONS & FUTURE DIRECTIONS

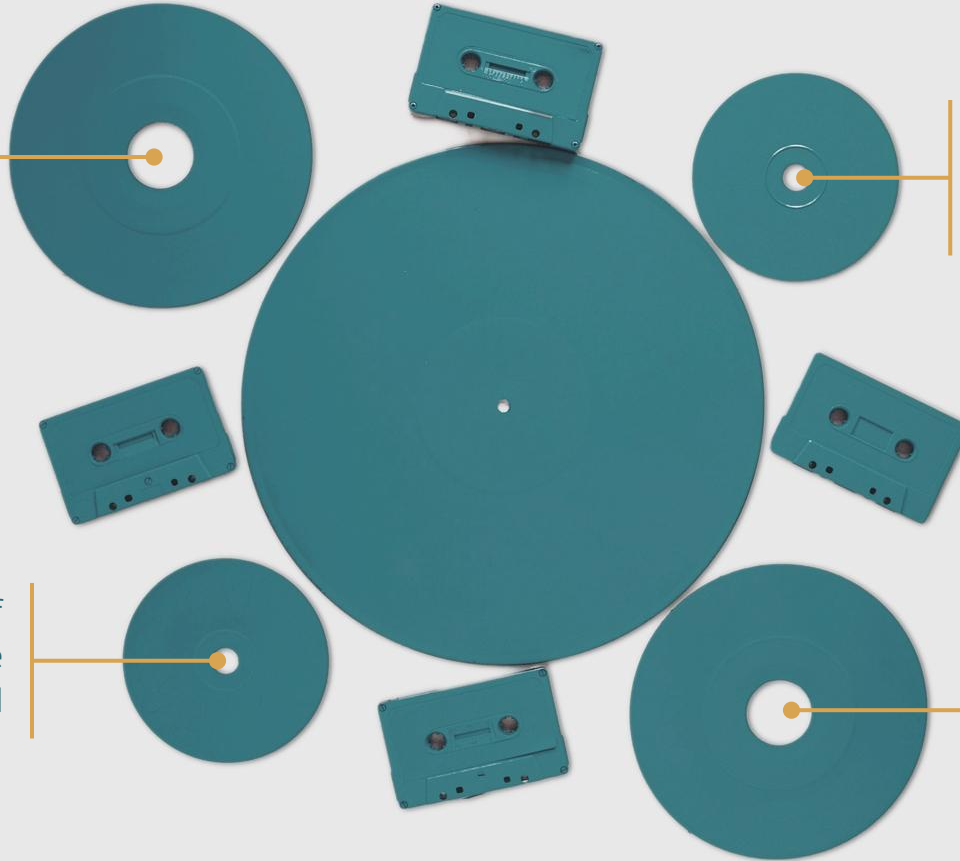
CONCLUSIONS & FUTURE DIRECTIONS

Five major topics
extracted from
1990-2019 US
song lyrics

Extend study into other
decades (in the US)

Composition of
topics have
changed

Extend study into
other countries'
music markets



THANKS

Does anyone have
any questions?

CREDITS

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