

ເພານຈາກຍົກໃຫ້ເປັນ ກຣະແສໃນຫຼວງນີ້ ?



INTRODUCTION

วิเคราะห์แนวโน้มการฟังเพลงของผู้คนทั่วโลกในปัจจุบัน
ที่กำลังฮิตหรือเป็นกระแสอยู่ โดยพิจารณาจากปีที่เพลงถูก
ปล่อยออกมาซึ่งข้อมูลที่ใช้ในการวิเคราะห์นั้นอ้างอิงมาจาก
แหล่งข้อมูลหลัก ได้แก่ Spotify, Youtube และ Last.fm





BASIC
RESEARCH

PIPELINE



DATA COLLECTION



DATA SOURCE

1. Spotify API



2. Youtube API



3. Last.fm API



DATA SURVEY IN SPOTIFY

	id	track_name	artist	album	popularity	release_date	spotify_url	preview_url	Genre
0	15cQVPbbwv0sZXrHRIAzeX	When I'm With You	NCT DREAM	DREAMSCAPE	74	2024-11-11	https://open.spotify.com/track/15cQVPbbwv0sZXrHRIAzeX		NaN pop
1	3yDRcs0Y4pPzkvMbUfeF9H	Moonlit Floor (Kiss Me)	LISA	Moonlit Floor (Kiss Me)	79	2024-10-03	https://open.spotify.com/track/3yDRcs0Y4pPzkvMbUfeF9H		NaN pop
2	7tl8dRuH2Yc6RuoTjxo4dU	Who	Jimin	MUSE	86	2024-07-19	https://open.spotify.com/track/7tl8dRuH2Yc6RuoTjxo4dU		NaN pop
3	7ov3TDp5D00Rnu5R1viX4w	New Woman (feat. ROSALÍA)	LISA, ROSALÍA	New Woman (feat. ROSALÍA)	77	2024-08-15	https://open.spotify.com/track/7ov3TDp5D00Rnu5R1viX4w		NaN pop
4	2plbrEY59likOBgBGLjaoe	Die With A Smile	Lady Gaga, Bruno Mars	Die With A Smile	97	2024-08-16	https://open.spotify.com/track/2plbrEY59likOBgBGLjaoe		NaN pop

DATA SURVEY IN YOUTUBE

	song_name	video_id	title	artist	release_date	views	likes	comments	error
0	Shape of You Ed Sheeran	LiTfD88dbCo	Ed Sheeran - Shape of You (Lyrics)	7clouds	2024-12-13T19:33:36Z	1.617114e+07	87989.0	3379.0	NaN
1	Blinding Lights The Weeknd	XwxLwG2_Sxk	The Weeknd - Blinding Lights (Lyrics)	7clouds	2020-03-01T18:09:07Z	1.424817e+08	1369380.0	35208.0	NaN
2	Dance Monkey Tones and I	q0hyYWKF0Q	TONES AND I - DANCE MONKEY (OFFICIAL VIDEO)	Tones And I	2019-06-24T22:01:36Z	2.212981e+09	16058425.0	392347.0	NaN
3	When I'm With You	qiaLTtDLB10	NCT DREAM 엔시티 드림 'When I'm With You...	NCT DREAM	2024-11-18T15:00:59Z	1.356990e+06	76411.0	2642.0	NaN
4	Moonlit Floor (Kiss Me)	pxGM_TOgHuM	LISA - MOONLIT FLOOR (Official Performance Video)	LLOUD Official	2024-10-09T00:00:07Z	6.620069e+07	1310509.0	46314.0	NaN

DATA SURVEY IN LAST.FM

	Track	Artist	Listeners	Playcount	Album	Tags	URL
0	When I'm With You	NCT DREAM	41296	660264	NaN	['House', 'Awesome', 'upbeat', 'Korean', 'k-pop']	https://www.last.fm/music/NCT+DREAM/_/When+I%20With+You
1	Moonlit Floor (Kiss Me)	LISA	164108	2545493	Moonlit Floor (Kiss Me)	['pop', 'dance pop', 'nu-disco', 'Hip-Hop', 'r...']	https://www.last.fm/music/Lisa/_/Moonlit+Floor+(Kiss+Me)
2	Who	Jimin	290397	118664117	NaN	['homosexual', 'soty', 'bots', 'who', 'jimin']	https://www.last.fm/music/jimin/_/Who
3	New Woman (feat. ROSALÍA)	LISA, ROSALÍA	13329	573805	NaN	[]	https://www.last.fm/music/LISA,+ROSAL%C3%A1DA/_/New+Woman+(feat.+ROSAL%C3%A1DA)
4	Die With A Smile	Lady Gaga, Bruno Mars	35802	562233	NaN	['collab', 'primadonna', 'lady mars']	https://www.last.fm/music/Lady+Gaga,+Bruno+Mars/_/Die+With+A+Smile



DATA CLEANSING IN SPOTIFY

	id	track_name	artist	album	popularity	release_date	spotify_url	preview_url	Genre
	15cQVPbbwv0sZXrHRIAzeX	When I'm With You	NCT DREAM	DREAMSCAPE	74	2024-11-11	https://open.spotify.com/track/15cQVPbbwv0sZXr...	NaN	pop
	3yDRcs0Y4pPzkvMbUfeF9H	Moonlit Floor (Kiss Me)	LISA	Moonlit Floor (Kiss Me)	79	2024-10-03	https://open.spotify.com/track/3yDRcs0Y4pPzkvM...	NaN	pop
	7tI8dRuH2Yc6RuoTjxo4dU	Who	Jimin	MUSE	86	2024-07-19	https://open.spotify.com/track/7tI8dRuH2Yc6Ruo...	NaN	pop
	7ov3TDp5D00Rnu5R1viX4w	New Woman (feat. ROSALÍA)	LISA, ROSALÍA	New Woman (feat. ROSALÍA)	77	2024-08-15	https://open.spotify.com/track/7ov3TDp5D00Rnu5...	NaN	pop
	2plbrEY59likOBgBGljaoe	Die With A Smile	Lady Gaga, Bruno Mars	Die With A Smile	97	2024-08-16	https://open.spotify.com/track/2plbrEY59likOBg...	NaN	pop

Remove preview_url column (NaN column)

	id	track_name	artist	album	popularity	release_date	spotify_url	Genre
	0V2passWyAXnON67kfAj7y		ABCD NAYEON	NaN	68	2024-06-14	https://open.spotify.com/track/0V2passWyAXnON6...	k-pop

Fill album name (we known that album name of this song is NA)
Ref:https://nayeon.lnk.to/NAYEON_NA

	id	track_name	artist	album	popularity	release_date	spotify_url	Genre
	0V2passWyAXnON67kfAj7y		ABCD NAYEON	NA	68	2024-06-14	https://open.spotify.com/track/0V2passWyAXnON6...	k-pop



DATA CLEANSING IN YOUTUBE

song_name	video_id	title	artist	release_date	views	likes	comments	error
New Jeans	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
FRIENDS	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
After Midnight	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Charmed	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Advice	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Fiebre (Prod. King DouDou)	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: The read operation timed out
BADGYAL	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Run BTS	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Stray Kids	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Friends	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Treasure	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
No Cigar	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Kiss of Life	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'
Imagineering	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Unexpected error: 'videold'

← Drop these rows

Then Drop this column



song_name	video_id	title	artist	release_date	views	likes	comments	error
Shape of You Ed Sheeran	liTfD88dbCo	Ed Sheeran - Shape of You (Lyrics)	7clouds	2024-12-13T19:33:36Z	1.617114e+07	87989.0	3379.0	NaN
Blinding Lights The Weeknd	XwxLwG2_Sxk	The Weeknd - Blinding Lights (Lyrics)	7clouds	2020-03-01T18:09:07Z	1.424817e+08	1369380.0	35208.0	NaN
Dance Monkey Tones and I	q0hyYWKF0Q	TONES AND I - DANCE MONKEY (OFFICIAL VIDEO)	Tones And I	2019-06-24T22:01:36Z	2.212981e+09	16058425.0	392347.0	NaN
When I'm With You	qiaLTtDLB10	NCT DREAM 엔시티 드림 'When I'm With You...	NCT DREAM	2024-11-18T15:00:59Z	1.356990e+06	76411.0	2642.0	NaN
Moonlit Floor (Kiss Me)	pxGM_TOgHuM	LISA - MOONLIT FLOOR (Official Performance Video)	LLOUD Official	2024-10-09T00:00:07Z	6.620069e+07	1310509.0	46314.0	NaN

DATA CLEANSING IN YOUTUBE

Find the rest NaN

song_name	0
video_id	0
title	0
artist	0
release_date	0
views	1
likes	28
comments	41
dtype: int64	

← Drop NaN rows of these columns

← Drop this useless column to save some useful rows



DATA CLEANSING IN LAST.FM

Track	Artist	Listeners	Playcount	Album	Tags	URL
When I'm With You	NCT DREAM	41296	660264	NaN	['House', 'Awesome', 'upbeat', 'Korean', 'k-pop']	https://www.last.fm/music/NCT+DREAM/_/When+I%20With+You
Moonlit Floor (Kiss Me)	LISA	164108	2545493	Moonlit Floor (Kiss Me)	['pop', 'dance pop', 'nu-disco', 'Hip-Hop', 'r...']	https://www.last.fm/music/Lisa/_/Moonlit+Floor+(Kiss+Me)
Who	Jimin	290397	118664117	NaN	['homosexual', 'soty', 'bots', 'who', 'jimin']	https://www.last.fm/music/jimin/_/Who
New Woman (feat. ROSALÍA)	LISA, ROSALÍA	13329	573805	NaN	[]	https://www.last.fm/music/LISA,+ROSAL%C3%A1DA/_/New+Woman+(feat.+ROSAL%C3%A1DA)
Die With A Smile	Lady Gaga, Bruno Mars	35802	562233	NaN	['collab', 'primadonna', 'lady mars']	https://www.last.fm/music/Lady+Gaga,+Bruno+Mars/_/Die+With+A+Smile

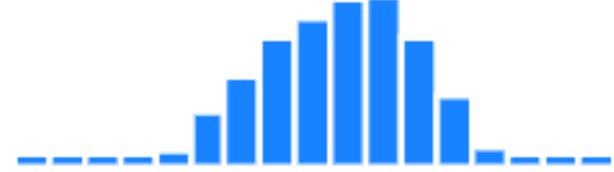
↑
select these columns to use

↑
Unselected columns

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7211 entries, 0 to 7210
Data columns (total 4 columns):
 #   Column      Non-Null Count  Dtype  
--- 
 0   Track        7211 non-null   object  
 1   Artist       7211 non-null   object  
 2   Listeners    7211 non-null   int64  
 3   Playcount    7211 non-null   int64  
dtypes: int64(2), object(2)
memory usage: 225.5+ KB
Done!!
```



MERGED DATA

	track_name	# Listeners	# Playcount	# popularity	artist	album
	Missing:	0 (0%)	Missing:	0 (0%)	Missing:	0 (0%)
	Distinct:	7169 (100%)	Distinct:	6563 (92%)	Distinct:	6962 (97%)
	7169 Distinct values	 Min 1 Max 3454950	 Min 1 Max 186126795	 Min 16 Max 97	3935 Distinct values	 Min 1 Max 5222
0	When I'm With You	41296	660264	74	NCT DREAM	DREAMSCAPE
1	Moonlit Floor (Kiss Me)	164108	2545493	79	LISA	Moonlit Floor (Kiss Me)
2	Who	290397	118664117	86	Jimin	MUSE
3	New Woman (feat. ROSALÍA)	13329	573805	77	LISA, ROSALÍA	New Woman (feat. ROSALÍA)
4	Die With A Smile	35802	562233	97	Lady Gaga, Bruno Mars	Die With A Smile
5	BIRDS OF A FEATHER	1628334	36478173	94	Billie Eilish	HIT ME HARD AND SOFT
6	Rockstar	421760	8767588	77	LISA	Rockstar
7	3D (feat. Jack Harlow)	30648	19035188	78	Jung Kook, Jack Harlow	GOLDEN
8	Standing Next to You	516010	143613509	81	Jung Kook	GOLDEN
9	Seven (feat. Latto) (Clean Ver.)	22386	41945813	76	Jung Kook, Latto	GOLDEN
10	One Of The Girls (with JENNIE, Lily Rose Depp)	30431	696353	87	The Weeknd, JENNIE, Lily-Rose Depp	The Idol Episode 4 (Music from)
11	Seven (feat. Latto)	18808	11938059	74	Jung Kook, Latto	Seven (feat. Latto)
12	Seven (feat. Latto) (Explicit Ver.)	40565	45554041	81	Jung Kook, Latto	GOLDEN
13	That's What I Like	1355775	11844788	85	Bruno Mars	24K Magic

DATA TRANSFORM

FORMAT OF DATA

Extract column release_date to columns year, month and day

track_name	# Listeners	# Playcount	# popularity	artist	album	release_date	# views	# likes	# year	# month	# day
When I'm With You	41296	660264	74	NCT DREAM	DREAMSCAPE	2024-11-11	1356990.0	76411.0	2024	11.0	11.0
Moonlit Floor (Kiss Me)	164108	2545493	79	LISA	Moonlit Floor (Kiss Me)	2024-10-03	66200691.0	1310509.0	2024	10.0	3.0
Who	290397	118664117	86	Jimin	MUSE	2024-07-19	90380936.0	2662194.0	2024	7.0	19.0
New Woman (feat. ROSALÍA)	13329	573805	77	LISA, ROSALÍA	New Woman (feat. ROSA	2024-08-15	142792624.0	3299299.0	2024	8.0	15.0
Die With A Smile	35802	562233	97	Lady Gaga, Bruno Ma	Die With A Smile	2024-08-16	749845365.0	8793461.0	2024	8.0	16.0
BIRDS OF A FEATHER	1628334	36478173	94	Billie Eilish	HIT ME HARD AND SOF	2024-05-17	264438203.0	2949462.0	2024	5.0	17.0
Rockstar	421760	8767588	77	LISA	Rockstar	2024-06-27	269889420.0	6448444.0	2024	6.0	27.0
3D (feat. Jack Harlow)	30648	19035188	78	Jung Kook, Jack Harlo	GOLDEN	2023-11-03	7108103.0	54303.0	2023	11.0	3.0
Standing Next to You	516010	143613509	81	Jung Kook	GOLDEN	2023-11-03	176431511.0	4554974.0	2023	11.0	3.0
Seven (feat. Latto) (Clean Ver.)	22386	41945813	76	Jung Kook, Latto	GOLDEN	2023-11-03	77169348.0	596347.0	2023	11.0	3.0

DROP COLUMN RELEASE_DATE

track_name	# Listeners	# Playcount	# popularity	artist	album	# views	# likes	# year	# month	# day
When I'm With You	41296	660264	74	NCT DREAM	DREAMSCAPE	1356990.0	76411.0	2024	11.0	11.0
Moonlit Floor (Kiss Me)	164108	2545493	79	LISA	Moonlit Floor (Kiss Me)	66200691.0	1310509.0	2024	10.0	3.0
Who	290397	118664117	86	Jimin	MUSE	90380936.0	2662194.0	2024	7.0	19.0
New Woman (feat. ROSALÍA)	13329	573805	77	LISA, ROSALÍA	New Woman (feat. ROSA	142792624.0	3299299.0	2024	8.0	15.0
Die With A Smile	35802	562233	97	Lady Gaga, Bruno Ma	Die With A Smile	749845365.0	8793461.0	2024	8.0	16.0
BIRDS OF A FEATHER	1628334	36478173	94	Billie Eilish	HIT ME HARD AND SOF	264438203.0	2949462.0	2024	5.0	17.0
Rockstar	421760	8767588	77	LISA	Rockstar	269889420.0	6448444.0	2024	6.0	27.0
3D (feat. Jack Harlow)	30648	19035188	78	Jung Kook, Jack Harlo	GOLDEN	7108103.0	54303.0	2023	11.0	3.0
Standing Next to You	516010	143613509	81	Jung Kook	GOLDEN	176431511.0	4554974.0	2023	11.0	3.0
Seven (feat. Latto) (Clean Ver.)	22386	41945813	76	Jung Kook, Latto	GOLDEN	77169348.0	596347.0	2023	11.0	3.0

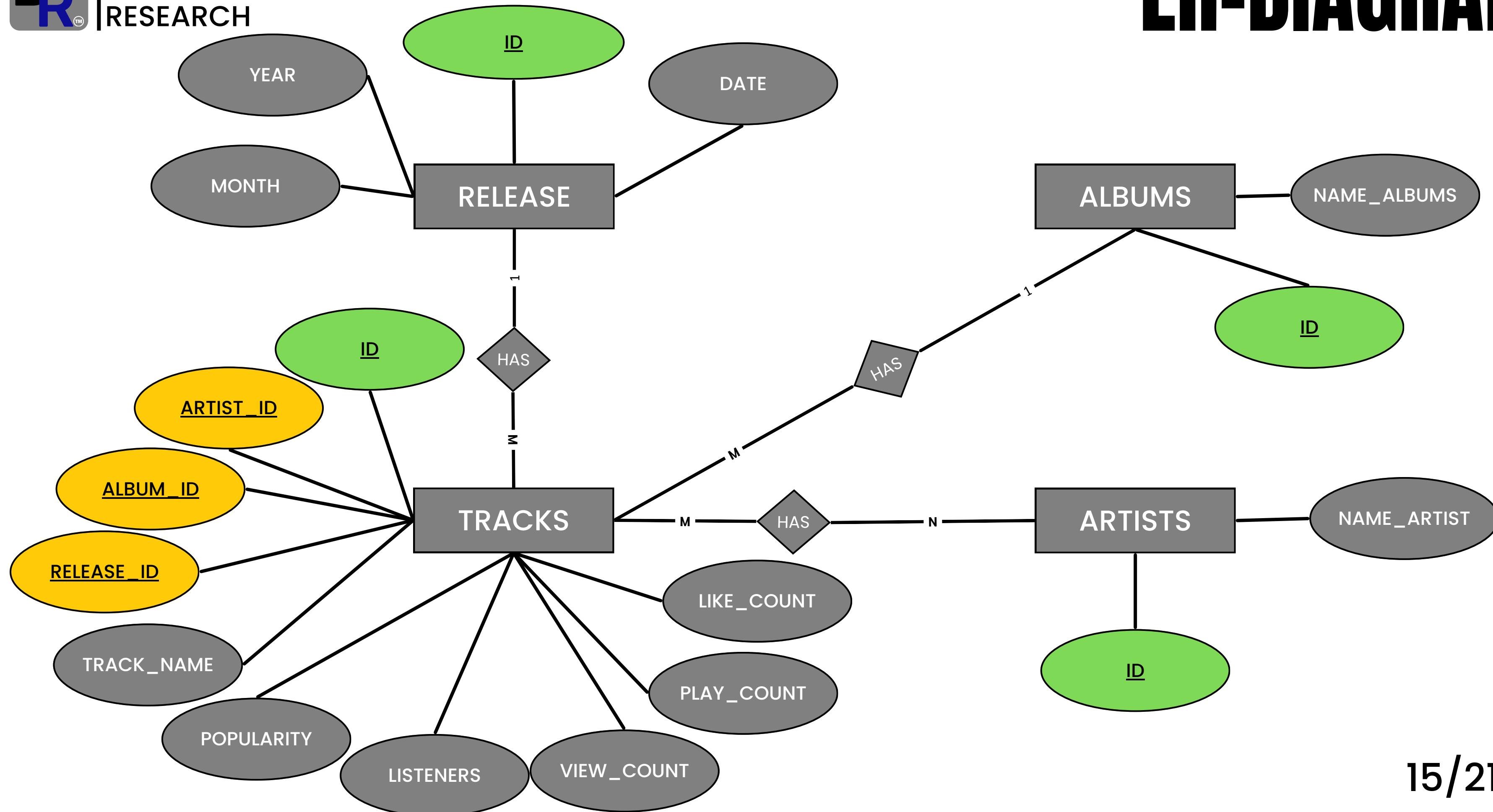
DATA TRANSFORM

DATABASE

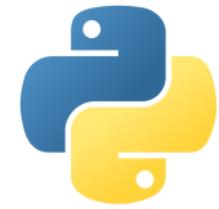


mongo DB

ER-DIAGRAM



API



```
▶ ▾
1 import requests as req
2
3 url = "http://10.48.104.39:8854/songs?limit=10"
4 response = req.get(url)
5 data = response.json()
6 data['songs']

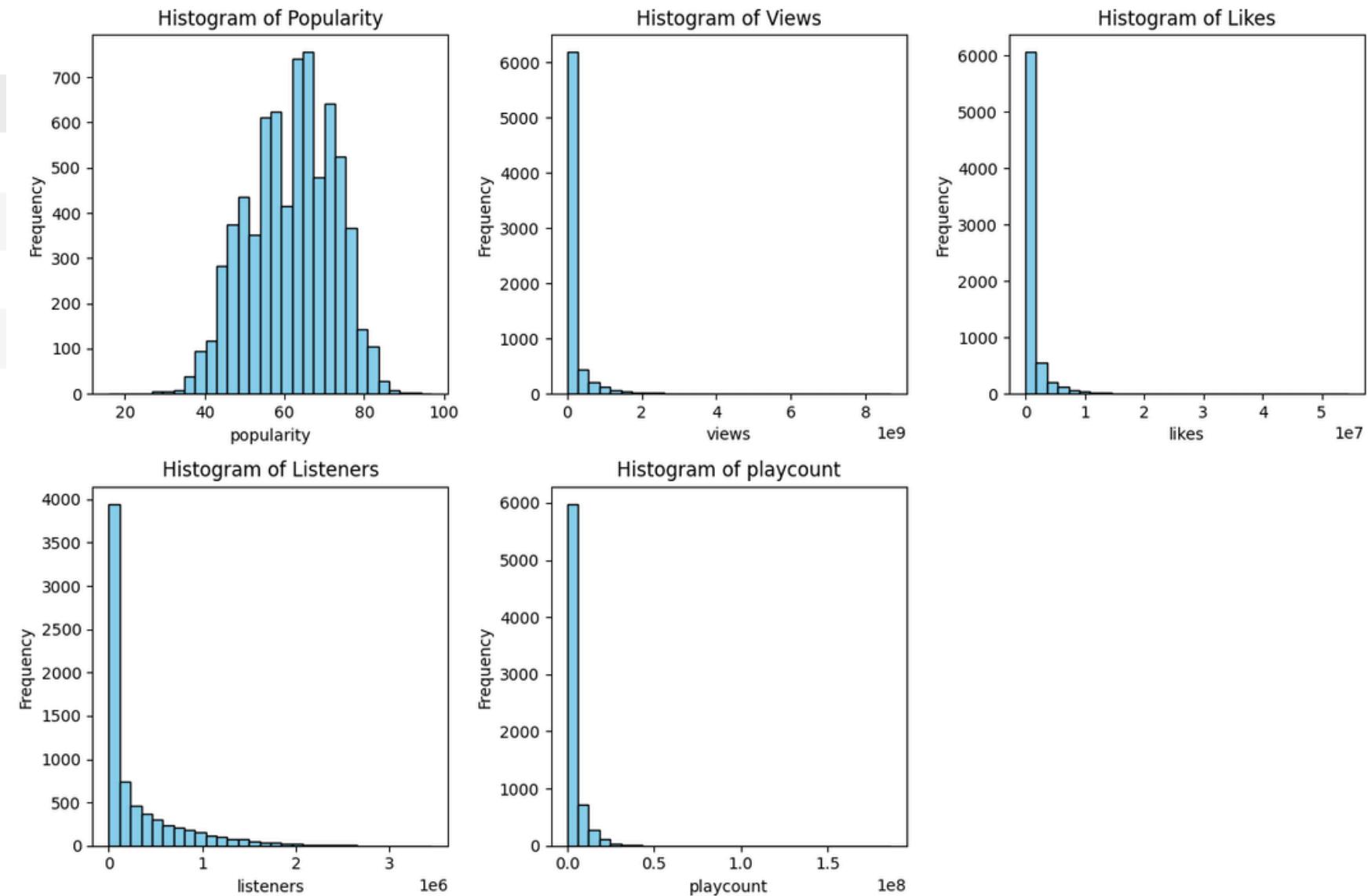
[18] ✓ 0.0s
```

```
...
...  [{"track_name": "When I'm With You",
      'popularity': 74,
      'view_count': 1356990,
      'like_count': 76411,
      'listeners': 41296,
      'play_count': 660264,
      'album': 'DREAMSCAPE',
      'artists': ['NCT DREAM'],
      'release_year': 2024,
      'release_month': 11,
      'release_day': 11},
     {"track_name": 'Moonlit Floor (Kiss Me)',
```



HOW TO CALCULATE TREND SCORE

	track_name	popularity	view_count	like_count	listeners	play_count	release_year
	Sad Machine	53	31060804	395876	241893	2193113	2014
	Stairway to Heaven - Remaster	75	57265280	565250	731145	5855847	1971
	To Zion (feat. Carlos Santana)	58	16129258	153842	5047	23219	1998
	LET'S GET FKD UP	72	20959342	152060	2080	11138	2023
	Murder On The Dancefloor	77	163482031	1073103	1102661	10070487	2002



Normalize popularity using StandardScaler

Normalize the rest using RobustScaler but applied Log Transformation first for right-skewed data

After normalize use PCA to create trend score

EXAMPLE RESULT

	track_name	release_year	popularity
4	Die With A Smile	2024	97
5	BIRDS OF A FEATHER	2024	94
471	Not Like Us	2024	92
22	WILDFLOWER	2024	91
21	Good Luck, Babe!	2024	90

Top 5 Hit songs from spotify popularity

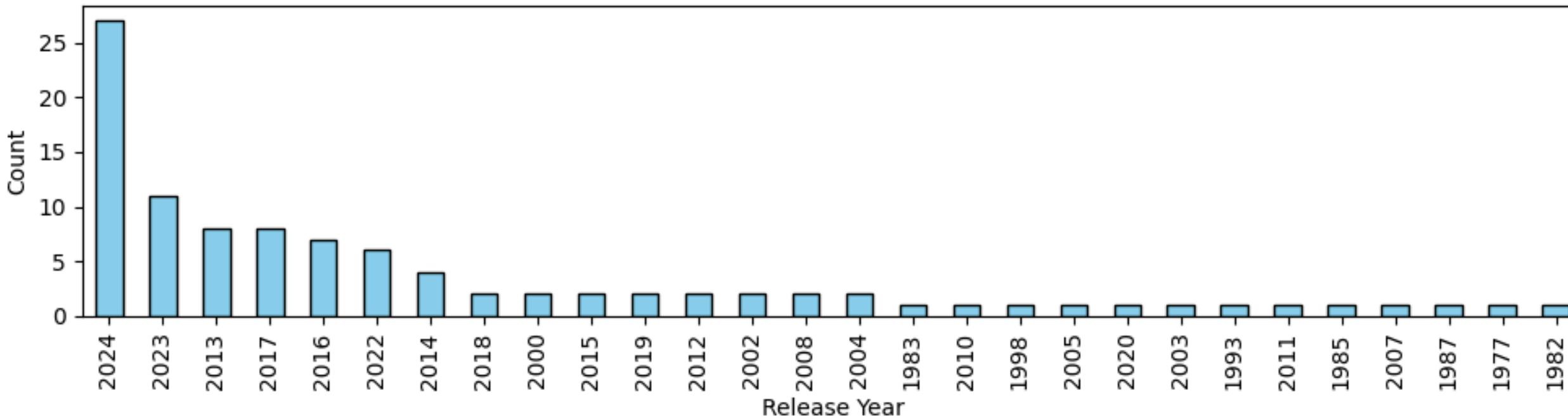
	track_name	release_year	trend_score
5	BIRDS OF A FEATHER	2024	3.254298
4	Die With A Smile	2024	3.201913
471	Not Like Us	2024	3.195764
34	Shape of You	2017	3.173450
13	That's What I Like	2016	3.089898

Top 5 Hit songs from trend score

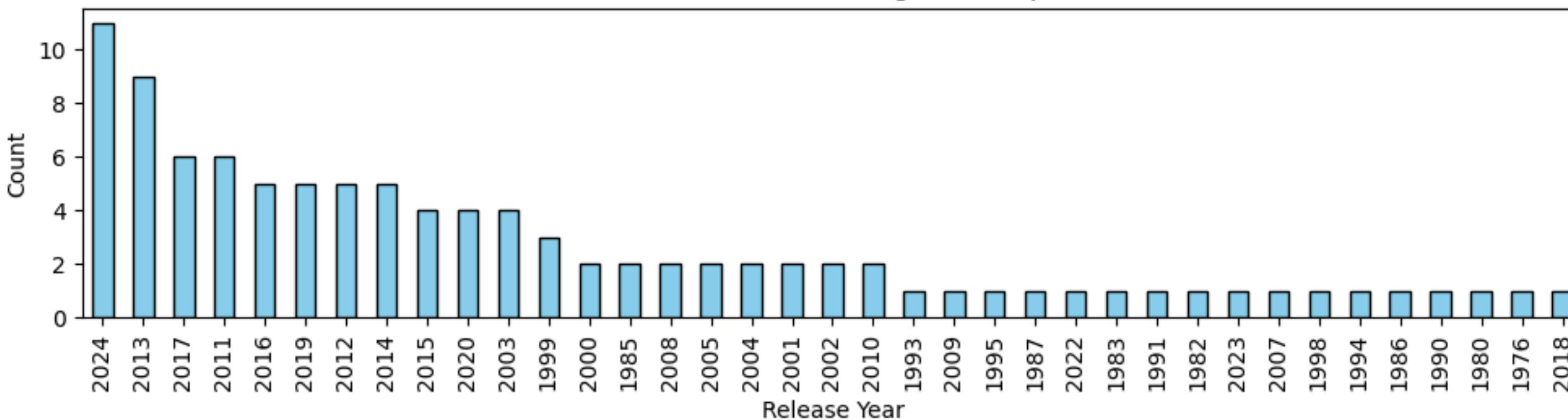


GLOBAL TOP HITS SONGS

Release Years of 100 Hit songs (Spotify popularity)



Release Years of 100 Hit songs (Three platform)



CONCLUSION

จากการวิเคราะห์กระแสการฟังเพลง พบว่าในช่วงนี้เพลงที่คนฟังมากที่สุดคือเพลงจากปี 2024, 2013 และ 2017 นอกจากนั้นผลลัพธ์ของการวิเคราะห์โดยการคำนวณ Trend Score ยังสามารถนำไปจัดเพลย์ลิส 100 เพลงอิตที่อ้างอิงข้อมูลมาจาก Spotify, Youtube และ Last.fm ได้อีกด้วย





THANK YOU
FOR YOUR ATTENTION