

# Problem definition

Organizing a successful party involves multiple components, and one of the most crucial elements is the music. Music sets the tone for the event and can significantly influence the overall atmosphere and enjoyment of the guests. For our upcoming party, I have been entrusted with the responsibility of curating the playlist. However, this task presents a unique challenge due to my distinctive music taste, which often does not align with the preferences of my friends, especially when it comes to danceable and energetic tracks.

The primary objective is to create a playlist that not only reflects popular music trends but also ensures high danceability and energy levels to keep the party lively and engaging. To achieve this, I need to move beyond personal biases and base my selections on data-driven insights.

Fortunately, I have access to a comprehensive dataset of the top most popular music on Spotify. This dataset includes various attributes of the songs, such as danceability, energy, and popularity, which can be leveraged to identify tracks that meet the desired criteria.

The specific goals of this analysis are:

- **Identify Danceable Tracks:** Determine which songs in the dataset have high danceability scores to ensure that the music will encourage guests to dance.
- **Assess Energy Levels:** Select songs with high energy scores to maintain a vibrant and dynamic atmosphere throughout the party.
- **Ensure Popularity:** Choose tracks that are popular and widely recognized to cater to the tastes of the majority of the guests.

By analyzing the dataset using these criteria, I aim to compile a playlist that will resonate with my friends and make the party a memorable event. This report will detail the methodology, findings, and final song selections based on the analysis conducted.

## Data

To address the challenge of curating a playlist that is both danceable and energetic, we utilized a dataset sourced from Kaggle, specifically from [this link](#). This dataset provides a comprehensive list of the most famous songs of 2023 as listed on Spotify and offers a wealth of features that are instrumental in our analysis.

The dataset is rich in information and includes the following 24 key attributes for each song:

- **track\_name**: Name of the song
- **artist(s)\_name**: Name of the artist(s) of the song
- **artist\_count**: Number of artists contributing to the song
- **released\_year**: Year when the song was released
- **released\_month**: Month when the song was released
- **released\_day**: Day of the month when the song was released
- **in\_spotify\_playlists**: Number of Spotify playlists the song is included in
- **in\_spotify\_charts**: Presence and rank of the song on Spotify charts
- **streams**: Total number of streams on Spotify
- **in\_apple\_playlists**: Number of Apple Music playlists the song is included in
- **in\_apple\_charts**: Presence and rank of the song on Apple Music charts
- **in\_deezer\_playlists**: Number of Deezer playlists the song is included in
- **in\_deezer\_charts**: Presence and rank of the song on Deezer charts
- **in\_shazam\_charts**: Presence and rank of the song on Shazam charts
- **bpm**: Beats per minute, a measure of song tempo
- **key**: Key of the song
- **mode**: Mode of the song (major or minor)
- **danceability\_%**: Percentage indicating how suitable the song is for dancing
- **valence\_%**: Positivity of the song's musical content
- **energy\_%**: Perceived energy level of the song
- **acousticness\_%**: Amount of acoustic sound in the song
- **instrumentalness\_%**: Amount of instrumental content in the song
- **liveness\_%**: Presence of live performance elements
- **speechiness\_%**: Amount of spoken words in the song

The dataset consists of a total of 953 rows.

The subsequent sections of this report will detail the methodology used to analyze the dataset, and the findings derived from the analysis. This data-driven approach ensures that the music chosen for the party will be well-received and contribute to an unforgettable experience for all attendees.

## Data preprocessing

The dataset had one row with corrupt values, which had to be removed. No additional columns were created for the purpose of this analysis.

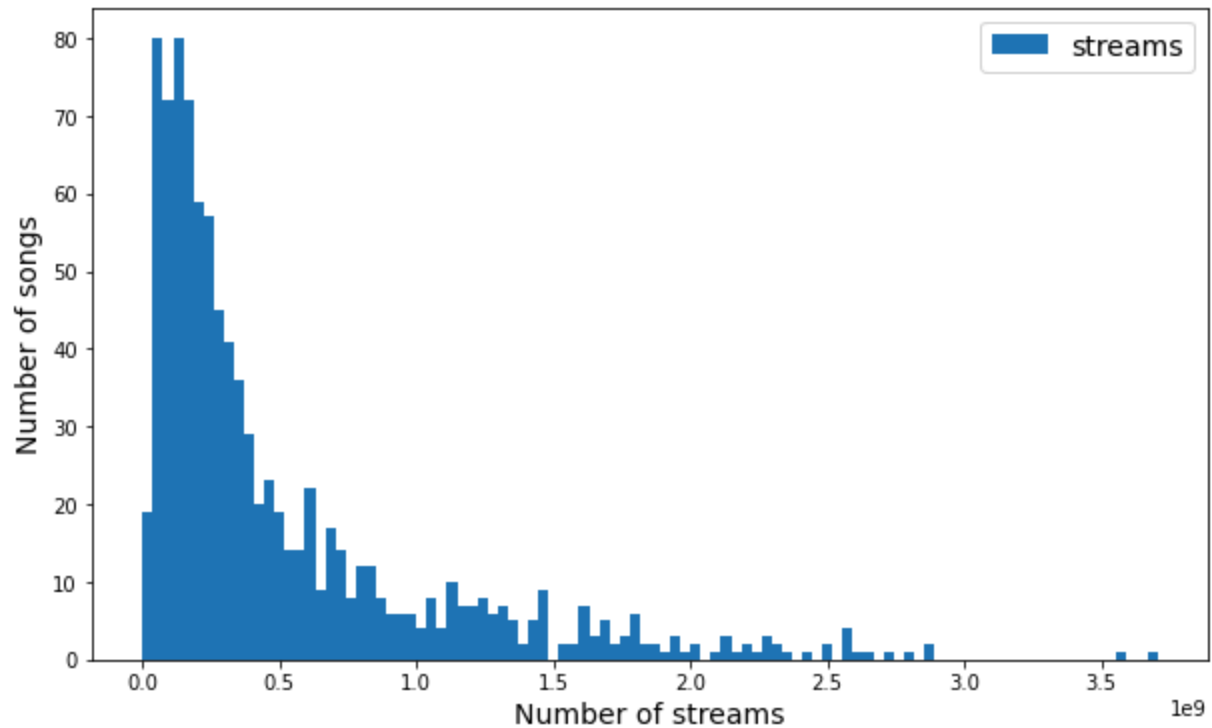
# Data analysis and Interpretation

## Streams

The first thing to take a look at are the descriptive statistics on the number of streams.

Statistic	Value
count	952
mean	514,000,000
std	567,000,000
min	2,760
25%	142,000,000
50%	291,000,000
75%	674,000,000
max	3,700,000,000

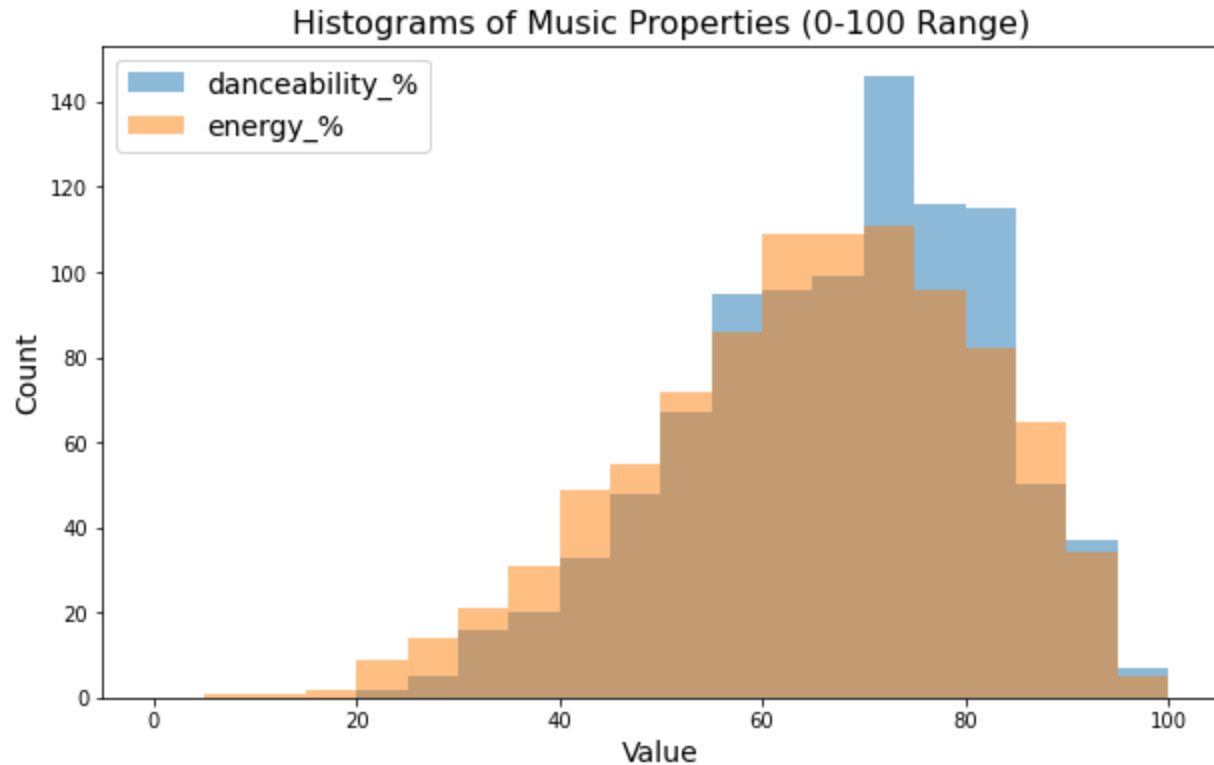
The dataset comprises 952 songs, with an average (mean) streaming count of approximately 514 million streams. The standard deviation is around 567 million, indicating a wide variation in the streaming numbers among the songs. The minimum number of streams recorded is 2,762, while the maximum reaches an impressive 3.7 billion streams. The 25th percentile (Q1) is at approximately 142 million streams, the median (50th percentile) is around 291 million streams, and the 75th percentile (Q3) is about 674 million streams. These statistics highlight the significant disparity in popularity among the top songs, with a few tracks achieving exceptionally high streaming numbers.



Note that the x axis of this histogram shows “number of streams” in billions, with 1.0 indicating 1 billion streams. The histogram of the streaming statistics further reveals that the distribution is highly asymmetric or skewed towards songs with a lower number of streams, which is an expected outcome. This indicates that while a few songs achieve exceptionally high streaming numbers, the majority of the tracks have more modest counts. It's important to note that these 952 songs are already outliers among millions of total songs available on Spotify, underscoring their relative popularity within the broader music landscape.

## Music properties

The next phase focuses on identifying tracks that are highly danceable and energetic. The dataset includes several columns that detail various properties of the music, such as: `danceability_`, `valence_`, `energy_`, `acousticness_`, `instrumentalness_`, `liveness_`, and `speechiness_`. By focusing on `danceability_` and `energy_`, I aim to curate a playlist that will not only be popular but also keep the energy high and ensure that the music is suitable for dancing, thereby contributing to a lively and engaging party atmosphere.



The histogram shows a significant number of songs with danceability percentages above 75%, indicating their high suitability for dancing. Similarly, there is a considerable number of tracks with energy percentages above 75%, reflecting their high perceived energy levels. This abundance of highly danceable and energetic songs provides a robust selection pool for creating a playlist that will keep the party lively and engaging.

## Music selection

The next step is to select the songs that meet the criteria for high danceability and energy. Given the large size of the dataset, we can apply both filters simultaneously. Specifically, we will filter for songs with danceability percentages greater than 75% and energy percentages greater than 75%.

Applying these criteria results in a selection of 101 songs. This refined subset is substantial enough to keep the party going for around 5 hours, ensuring a continuous flow of highly danceable and energetic music. This selection will form the backbone of the playlist, guaranteeing an engaging and lively atmosphere throughout the event.

Below is the full list of selected songs:

track_name	artist(s)_name	streams	danceability	energy
A Tu Merced	Bad Bunny	685071800	86	79
Acapulco	Jason Derulo	363467642	77	79
Antes de Perderte	Duki	157136970	81	93
ANTIFRAGILE	LE SSERAFIM	301051721	88	80
BABY HELLO	Rauw Alejandro, Bizarrap	54266102	77	89
BABY OTAKU	Fran C, Polima WestCoast, Nickoog Clk, Pablito Pesadilla	159240673	84	75
Bad Decisions (with BTS & Snoop Dogg)	Snoop Dogg, BTS, Benny Blanco	219196651	77	87
Bad Habits	Ed Sheeran	1555511105	81	90
Bamba (feat. Aitch & BIA)	Luciano, Aitch, Biç ½	146223492	80	81
Believer	Imagine Dragons	2594040133	77	78
Belly Dancer	BYOR, Imanbek	383835984	85	80
Besharam Rang (From "Pathaan")	Vishal-Shekhar, Shilpa Rao, Caralisa Monteiro, Kumaar, Vishal Dadlani, Shekhar Ravjiani	140187018	77	80
Bite Me	ENHYPEN	76767396	80	78
Bye	Peso Pluma	95053634	78	81
California Love - Original Version (Explicit)	Dr. Dre, 2Pac, Roger	579395142	77	84

Calm Down	Rihanna	445763624	81	78
Calm Down (with Selena Gomez)	Rihanna, Selena G	899183384	80	80
Cold Heart - PNAU Remix	Dua Lipa, Elton John, Pnau	1605224506	80	80
Contection	GODZZ_, Zakaria	1180896317	81	75
DANCE CRIP	Trueno	198883004	86	79
Do It To It	Cherish, ACRAZE	674772936	85	81
Don't Be Shy	Tiësto, Kar	566954746	77	79
Don't Start Now	Dua Lipa	2303033973	79	79
Don't You Worry	David Guetta, Shakira, Black Eyed Peas	240918092	82	88
Dynamite	BTS	1692897992	75	77
En La De Ella	Feid, Sech, Jhayco	133895612	82	77
Ensigname	Bad Bunny	279737940	81	79
Es un Secreto	Plan B	540654286	84	77
Friday (feat. Mufasa & Hypeman) - Dopamine Re-Edit	Riton, Nightcrawlers, Mufasa & Hypeman, Dopamine	863756573	82	86
Gasolina	Daddy Yankee	657723613	86	80
Gatita	Bellakath	168684524	90	81
Get Lucky - Radio Edit	Pharrell Williams, Nile Rodgers, Daft Punk	933815613	79	81
Gospel (with Eminem)	Eminem, Dr. Dre	64787943	92	86

I Heard You're Married (feat. Lil Wayne)	The Weeknd, Lil Wayne	91656026	75	84
IDGAF (with blackbear)	Blackbear, BoyWithUke	197643795	78	75
Igualito a Mi Apĩ½	Fuerza Regida, Peso Pluma	158950978	76	81
LA INOCENTE	Feid, Mora	477033549	76	79
La Llevo Al Cielo (Ft. ½½½engo F	Nengo Flow, Anuel Aa, Chris Jedi, Chencho Corleone	333146475	80	85
La Loto	Anitta, Tini, Becky G	121189256	85	83
La Zona	Bad Bunny	312622938	76	80
Las Morras	BLESSD, Peso Pluma	127026613	78	84
Ley Seca	Anuel Aa, Jhay Cortez	355219175	76	84
LOKERA	Brray, Rauw Alejandro, Lyanno	471819764	83	83
Malas Decisiones	Kenia OS	156214700	81	79
Malvada	Zi½½½ Fe	154119539	89	86
Marisola - Remix	Duki, NICKI NICOLE, Cris Mj, Standly, Stars Music Chile	223582566	77	87
Me Arrepenti½	Ak4:20, Cris Mj, Pailita	118381354	86	79
MERCHO	Migrantes, LiL CaKe, Nico Valdi	231332117	84	79
Mi Bello Angel	Natanael Cano	31873544	81	77



Mon Amour - Remix	Aitana, zzoilo	578207856	75	76
Nos Comemos (feat. Ozuna)	Ozuna, Tiago pzk	138334433	83	82
Numb	Marshmello, Khalid	295307001	91	77
OMG	NewJeans	430977451	80	77
One Kiss (with Dua Lipa)	Calvin Harris, Dua Lipa	1897517891	79	86
OUT OUT (feat. Charli XCX & Saweetie)	Charli XCX, Jax Jones, Joel Corry, Saweetie	427486004	79	84
Party	Bad Bunny, Rauw Alejandro	614555082	83	80
Pepas	Farruko	1309887447	76	77
PERO Tí½	Karol G, Quevedo	93438910	86	79
POP!	Nayeon	213505179	80	86
PRC	Natanael Cano, Peso Pluma	436027885	78	83
PUNTO 40	Baby Rasta, Rauw Alejandro	304079786	87	83
Punto G	Quevedo	381161027	75	76
Queencard	(G)I-DLE	96273746	82	83
QUEMA	Sog, Ryan Castro, Peso Pluma	11599388	79	89
Qui½i½ Mi½i½	J Balvin, Maria Becerra	720825549	89	82
Rumble	Skrillex, Flowdan, Fred again..	78489819	81	84

SABOR FRESA	Fuerza Regida	78300654	79	86
S-Class	Stray Kids	65496046	89	78
Seven (feat. Latto) (Explicit Ver.)	Latto, Jung Kook	141381703	80	83
Shivers	Ed Sheeran	1302184087	79	86
Si Quieren Frontear	De La Ghetto, Duki, Quevedo	178512385	79	84
Siempre Pendientes	Peso Pluma, Luis R Conriquez	295152154	77	75
Sin Sei½i½	Ovy On The Drums, Quevedo	209106362	82	85
Sky	Playboi Carti	506778838	79	91
Sobrio	Maluma	513643924	76	77
Stefania (Kalush Orchestra)	KALUSH	53729194	83	82
Still D.R.E.	Dr. Dre, Snoop Dogg	1210599487	81	78
Super	SEVENTEEN	91221625	77	88
Super Freaky Girl	Nicki Minaj	428685680	95	89
Super Shy	NewJeans	58255150	78	82
Superman	Eminem, Dina Rae	655466831	80	76
Tacones Rojos	Sebastian Yatra	510876816	75	86
Talk that Talk	TWICE	189476119	77	91
That That (prod. & feat. SUGA of BTS)	PSY, Suga	212109195	91	96
The Feels	TWICE	345903614	81	90

The Heart Part 5	Kendrick Lamar	71423324	76	81
The Motto	Tiï½ï½sto, Ava	656013912	75	76
The Next Episode	Dr. Dre, Snoop Dogg	843309044	92	89
There's Nothing Holdin' Me Back	Shawn Mendes	1714490998	86	80
Ti½ï½	dennis, MC Kevin o Chris	111947664	86	96
TQM	Fuerza Regida	176553476	79	85
ULTRA SOLO	Polima WestCoast, Pailita	307752576	80	85
ULTRA SOLO REMIX	De La Ghetto, Feid, Polima WestCoast, Paloma Mami, Pailita	279717388	91	82
UNFORGIVEN (feat. Nile Rodgers)	Nile Rodgers, LE SSERAFIM	92035115	80	88
VAGABUNDO	Sebastian Yatra, Manuel Turizo, Bei½ï½	90839753	82	85
Villano Antillano: Bzrp Music Sessions, Vol. 51	Bizarrap, Villano Antillano	248511839	82	75
Where Did You Go?	MNEK, Jax Jones	300983101	77	78
Woman	Doja Cat	1329090101	82	76
X ï½ï½LTIMA	Daddy Yankee, Bad Bunny	349746291	81	83
X SI VOLVEMOS	Karol G, Romeo Santos	266624541	79	78
Zona De Perigo	Leo Santana	134294498	81	77