Danceability

SAS.COM™

Our Problem

- Danceability describes how suitable a track is for dancing based on a combination of musical elements including tempo, rhythm stability, beat strength, and overall regularity.
- We tasked ourselves with deriving Spotify's danceability algorithm and the creating a program to calculate the danceability of any song.

Our DataSet

Name	Type	Range
id	integer	0-INTEGER_MAX_VALUE
acousticness	float	0-1
danceability	float	0-1
duration_ms	integer	1-INTEGER_MAX_VALUE
energy	float	0-1
instrumentalr	float	0-1
key	integer	0-11
liveness	float	0-1

Name	Type	Range
loudness	float	-60
mode	integer	0-1
speechiness	float	0-1
tempo	float	0-200
time_signatu	integer	1-8
valence	float	0-1
target	numeric	0-1
song_title	string	n/A
artist	string	n/A

Fun Facts: “Sexyback” - Justin Timberlake, “Bad Liar” - Selena Gomez and “I’m Different” - 2 Chainz are the top three most danceable songs of our dataset.
On the other hand the least danceable songs are: ”Mozart: Requiem in D Minor” - Mozart, “Trio Sonata in G Major” - Bach, “String Quintet in C Major, Op. 29” - Beethoven

How we solved it

Name	Type	Range
id	integer	0-INTEGER_MAX_VALUE
acousticness	float	0-1
danceability	float	0-1
duration_ms	integer	1-INTEGER_MAX_VALUE
energy	float	0-1
instrumentalr	float	0-1
key	integer	0-11
liveness	float	0-1

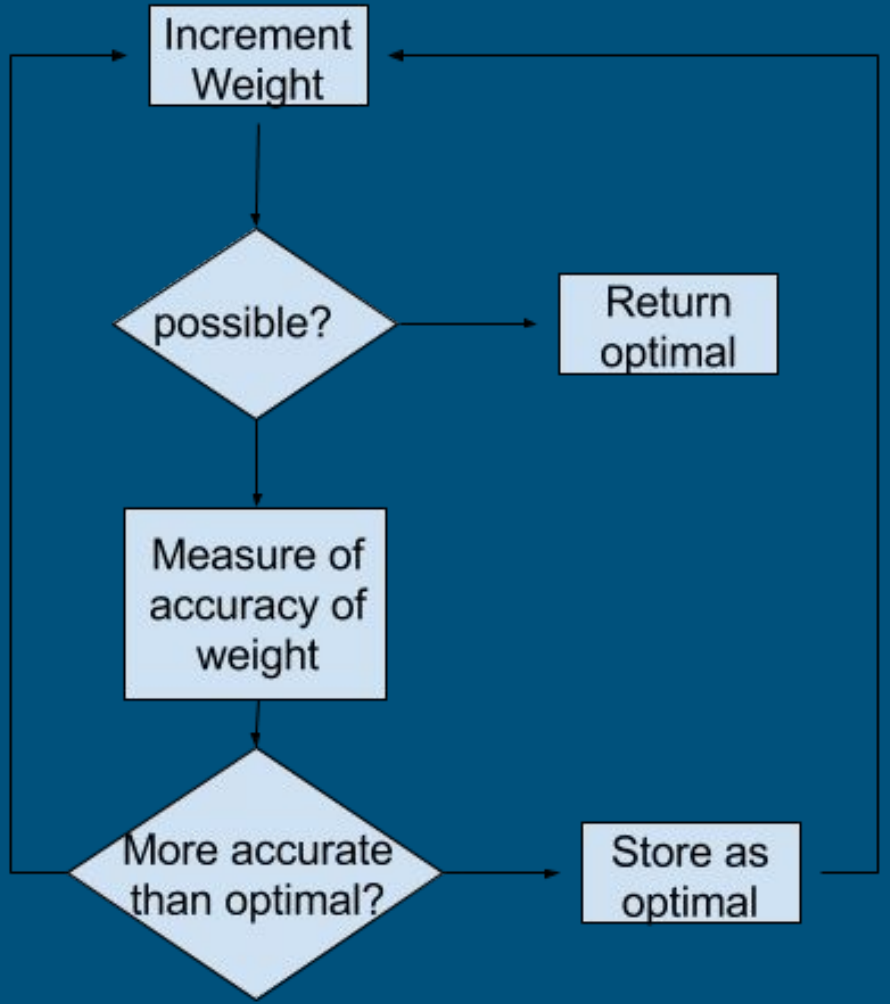
Name	Type	Range
loudness	float	-60
mode	integer	0-1
speechiness	float	0-1
tempo	float	0-200
time_signatui	INTEGER	1-9
valence	float	0-1
target	numeric	0-1
song_title	string	n/A
artist	string	n/A

How we solved it

Name	Type	Range
id	integer	0-INTEGER_MAX_VALUE
acousticness	float	0-1
danceability	float	0-1
duration_ms	integer	1-INTEGER_MAX_VALUE
energy	float	0-1
instrumentalr	float	0-1
key	integer	0-11
liveness	float	0-1

Name	Type	Range
loudness	float	-60
mode	integer	0-1
speechiness	float	0-1
tempo	float	0-200
time_signatu	INTEGER	1-9
valence	float	0-1
target	numeric	0-1
song_title	string	n/A
artist	string	n/A

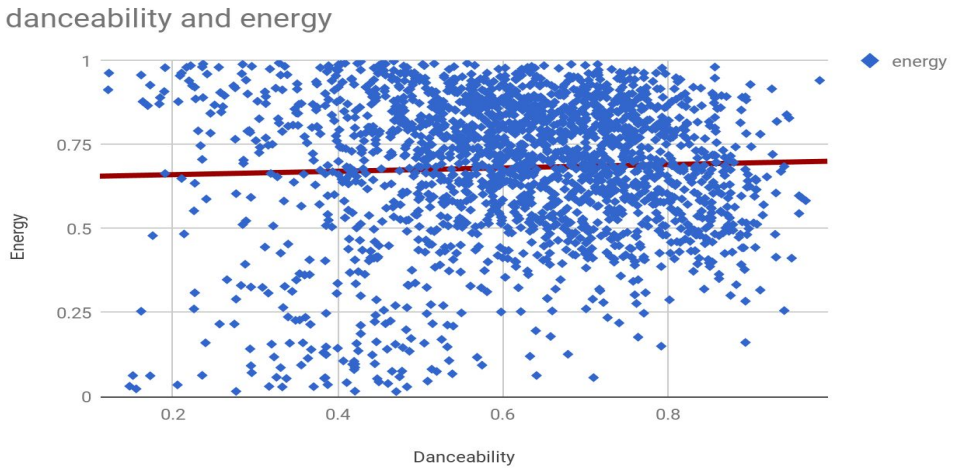
Our Algorithm

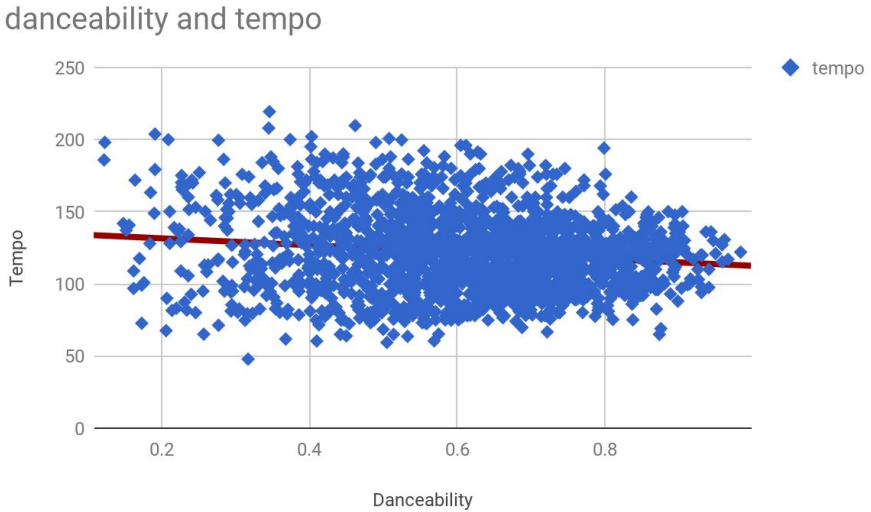


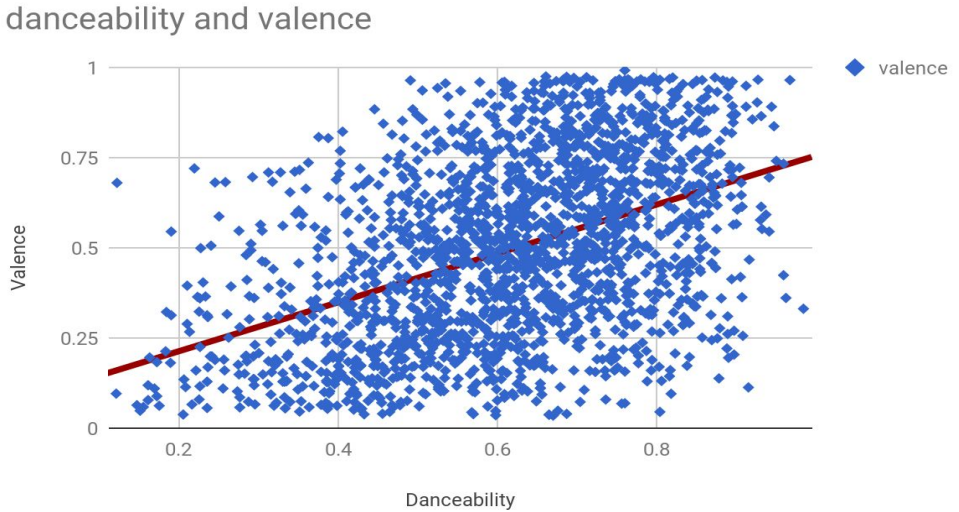
Our Results

- The songs with the highest danceability scores were the songs that had high levels of valence, energy, and tempo.

Our Results

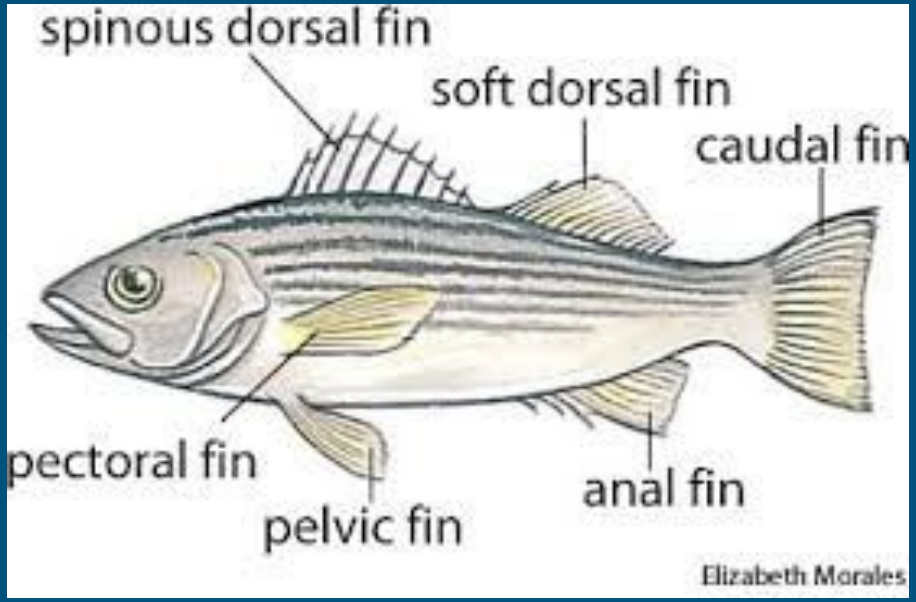

danceability and energy
energy
1
0.75
0.5
0.25
0
Energy
0.2
0.4
0.6
0.8
Danceability


danceability and tempo
tempo
250
200
150
100
50
0
Tempo
0.2
0.4
0.6
0.8
Danceability


danceability and valence
valence
1
0.75
0.5
0.25
0
Valence
0.2
0.4
0.6
0.8
Danceability

Conclusion

- No measure for beat consistency
- Our dataset was incomplete to replicate the exact algorithm used by Spotify because the value for beat consistency is missing.
- To demonstrate why think beat consistency matters we will compare the most danceable songs to the least danceable



TANK YOU VERY MANY