**Project: A Century of the Danceability of Music**

**Project Team**: Velveeta

**Project Team Members**: Haley Peterson, Emily Wuenstel, Collin Page, Drew Miller

**Thesis**: The “danceability” of music is correlated to measurable qualities of the music. Using data from 1921-2021, there are both positive and negative correlations to measured attribute of a song that impact its “danceability”.

**Project Overview & Methodology**: Looking at Spotify’s data on songs from 1921-2021, we: 1) compared various qualities of music to test their correlative impact on a song’s “danceability” (see Definitions, *below*); further, we investigated: 2) various music genres to see where geographical origin/genre types may impact a song’s danceability; 3) the danceability of songs over decades to see if time has had an impact on the danceability of songs generally; and 4) cross-referenced individual qualities/attributes of a song to see if they correlated independently on danceability scores.

Initial investigations showed the data be inconclusive based on starting project parameters. Given the number of songs per year available, due to limitations on availability of data and thus of the data set.

* We concluded: data for the years 1921-1950 contributed to outliers that skewed our analyses and results; data from 2021 is incomplete; and therefore, our revised data set (inclusive of 1951-2020) provides 75 years of data we found more reliable as a representation of songs per year and decade that validated our hypothesis without extraneous or incomplete data inconclusive to interpretation without further evaluation and/or resources at this time.

Our analysis provides data-driven evidence that, over the past 75 years:

*1) Danceability as indicated by a song’s qualities:*

*2) Geographic influence by genre and its impact on a song’s Danceability:*

*3) Danceability across decades and temporal impacts on a song’s Danceability:*

*4) Aggregated interaction of qualities and impact to Danceability:*

**Definitions** (Qualities of Music):

1. **Acousticness**: “A confidence measure from 0.0 to 1.0 of whether the track is acoustic. 1.0 represents high confidence the track is acoustic.”
2. **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. A value of 0.0 is least danceable and 1.0 is most danceable.”
3. **Liveliness**: “Detects the presence of an audience in the recording. Higher liveness values represent an increased probability that the track was performed live. A value above 0.8 provides strong likelihood that the track is live.”
4. **Loudness**: “The overall loudness of a track in decibels (dB). Loudness values are averaged across the entire track and are useful for comparing relative loudness of tracks. Loudness is the quality of a sound that is the primary psychological correlate of physical strength (amplitude). Values typical range between -60 and 0 db.”
5. **Instrumentalness**: “Predicts whether a track contains no vocals. “Ooh” and “aah” sounds are treated as instrumental in this context. Rap or spoken word tracks are clearly “vocal”. The closer the instrumentalness value is to 1.0, the greater likelihood the track contains no vocal content. Values above 0.5 are intended to represent instrumental tracks, but confidence is higher as the value approaches 1.0.”
6. **Speechiness**: “Detects the presence of spoken words in a track. The more exclusively speech-like the recording (e.g., talk show, audio book, poetry), the closer to 1.0 the attribute value. Values above 0.66 describe tracks that are probably made entirely of spoken words. Values between 0.33 and 0.66 describe tracks that may contain both music and speech, either in sections or layered, including such cases as rap music. Values below 0.33 most likely represent music and other non-speech-like tracks.”
7. **Tempo**: “The overall estimated tempo of a track in beats per minute (BPM). In musical terminology, tempo is the speed or pace of a given piece and derives directly from the average beat duration.”
8. **Valence**: “A measure from 0.0 to 1.0 describing the musical positiveness conveyed by a track. Tracks with high valence sound more positive (e.g., happy, cheerful, euphoric), while tracks with low valence sound more negative (e.g., sad, depressed, angry).”

**Analysis**: