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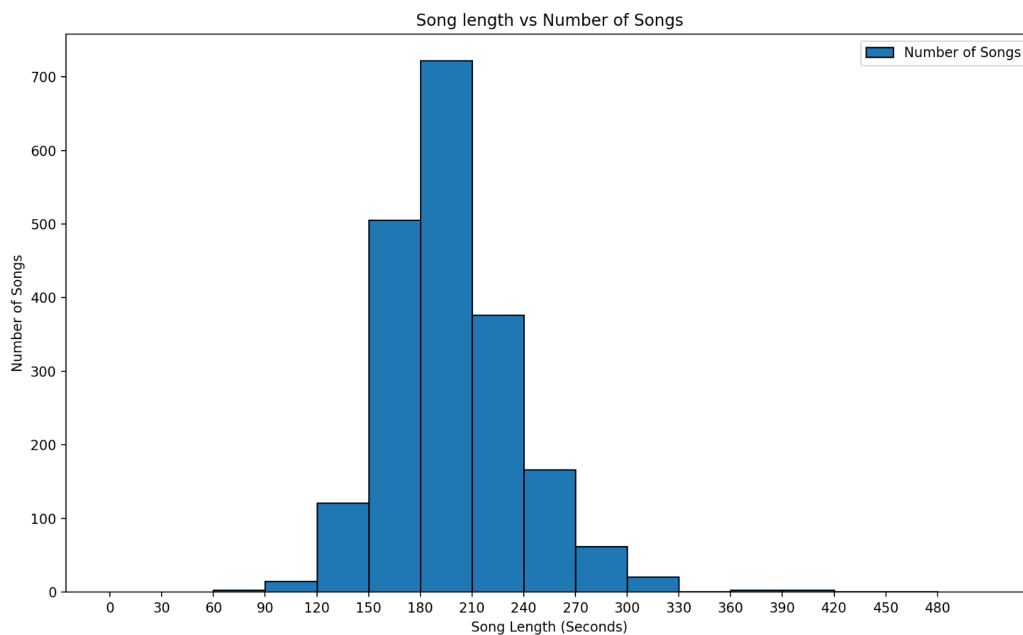
CSCI 51: Intro to Computer Science with Python

9 December 2022

### Final Project Analysis

For our final project, we decided to analyze song lengths of popular songs over the years and see how they correlated with several factors. Specifically, we studied song length popularity in recent years, the change in average song length over time, and the average lengths of songs in different genres. Through this analysis, we hoped that artists better gauge how long they should make their songs based on what genre they were working in and what groups of song lengths tend to have or will have the most success in this current period.

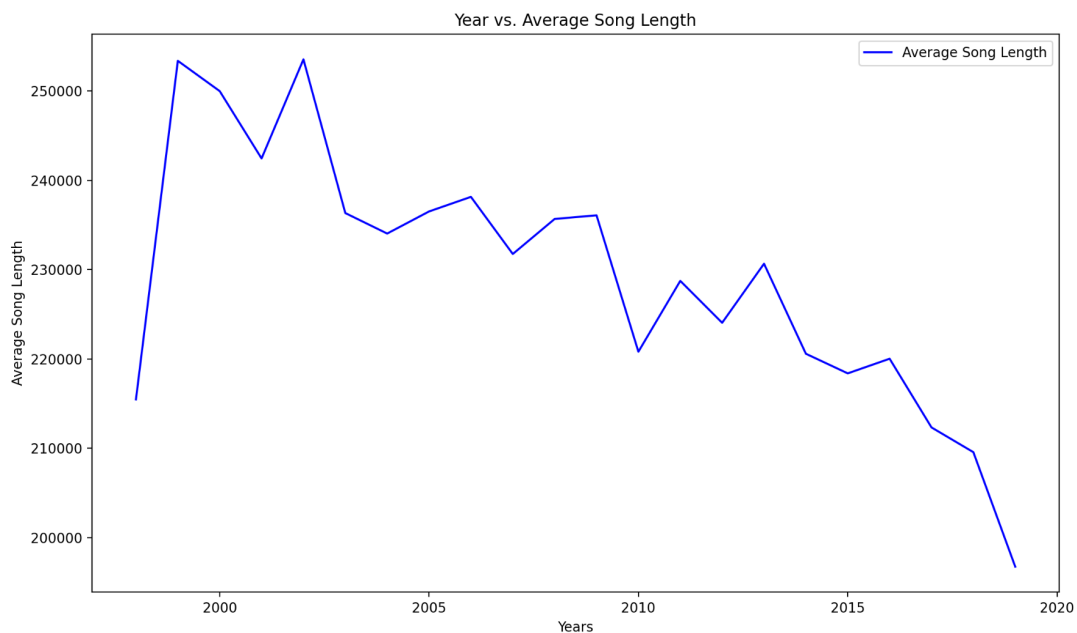
The first graph we made compared the number of songs and their lengths, specifically between 30-second intervals, as shown below:



Immediately it is clear that the most often made song length ranges between 180 and 210 seconds, while also showing that it is common to be a little shorter or longer than that length. This graph tells artists what lengths of songs achieve the most success, that being in the

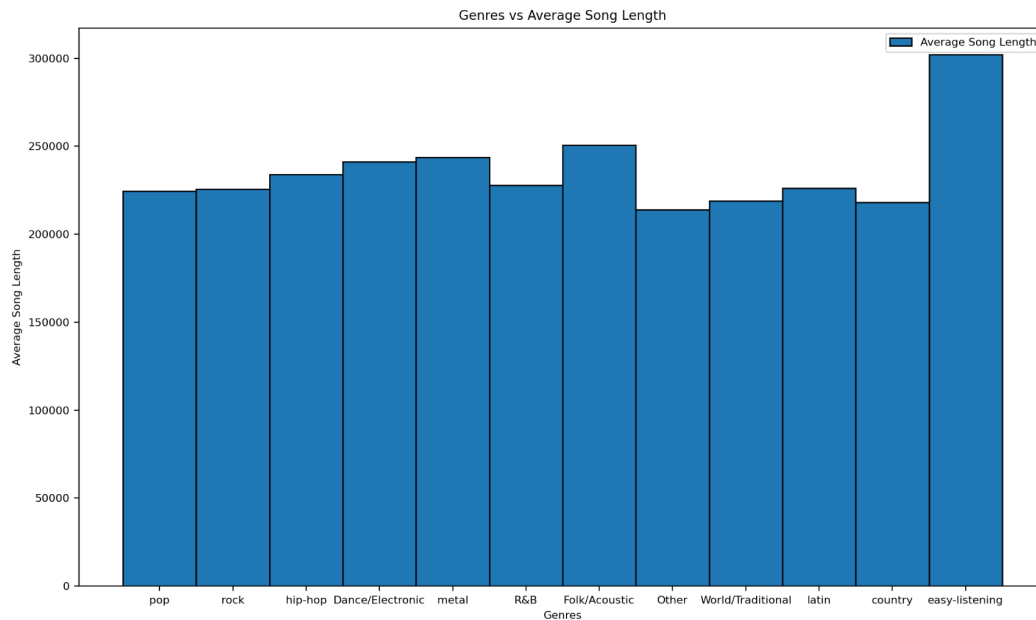
two-and-a-half to four-minute range (150000 to 240000 ms) as that is where the majority of song durations lie. This data can guide artists to prove why they should make songs within this length range if they want them to become popular, especially since a staggering 700 songs in the top 2000 songs of the past two decades sit between 180 and 210 seconds. This graph can also show artists where they can stand out, making songs of longer or shorter lengths to give their brand of music a unique style immediately.

Our second graph provides a plot for average song length over the last two decades and helps artists understand what lengths might be popular in the future, as shown below:



It is clear to see from this graph that the average length of popular songs has been going down significantly, almost by an entire minute. Due to this, we can infer a slight downward trendline, suggesting that the most popular songs of the 2020s, and possibly even the 2030s, will be around 170000 to 200000 ms long (approximately 3 minutes long). This will help artists better prepare for the shortening attention spans of listeners and to plan for even shorter songs to have a better probability of success in the future.

Our final graph analyzes the average song lengths of popular hits for numerous genres, which is shown below:



As seen with the figure above, there is not a stark difference for average song lengths between genres are similar, as they all fall between the three to three and a half minute range (210000 to 240000 ms). This indicates that artists who are interested in creating pop, rock, hip-hop, dance/electronic, metal, R&B, folk/acoustic, world/traditional, latin, country, or others should aim for a song duration within this range. The exception to this trend is the easy-listening genre, averaging a duration of 5 minutes per song. This suggests that artists who are interested in creating music of this type should aim for their songs to be around 5 minutes long.