



How to Win A Grammy

Hiba Akbi, Dwi Prima Putri



Overall Data

4 grammy
categories

24 Years
2000-2024

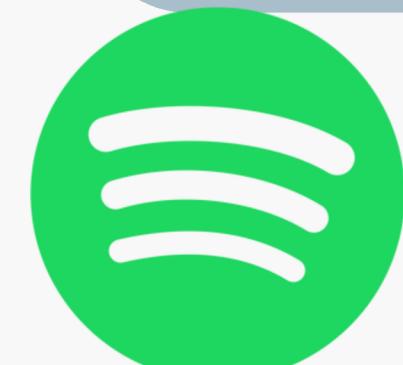
Song of the Year
Record of the Year
Best Rap Song
Best New Artist

Overall Data

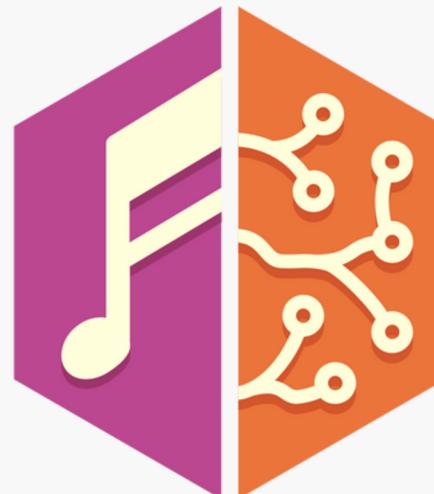
4 grammy
categories

4 websites
6 APIs

24 Years
2000-2024



Spotify®



deezer



billboard



WIKIPEDIA
The Free Encyclopedia



RECORDING ACADEMY®
GRAMMY AWARDS

Overall Data

11489 unique
songs

2305 unique
artists

4 data sets

Hot100
Songs

Artists

US States

Artist Data

2305
artists

188 (8.16%)

grammy recognized

41 (1.7%)

winners in 25 years

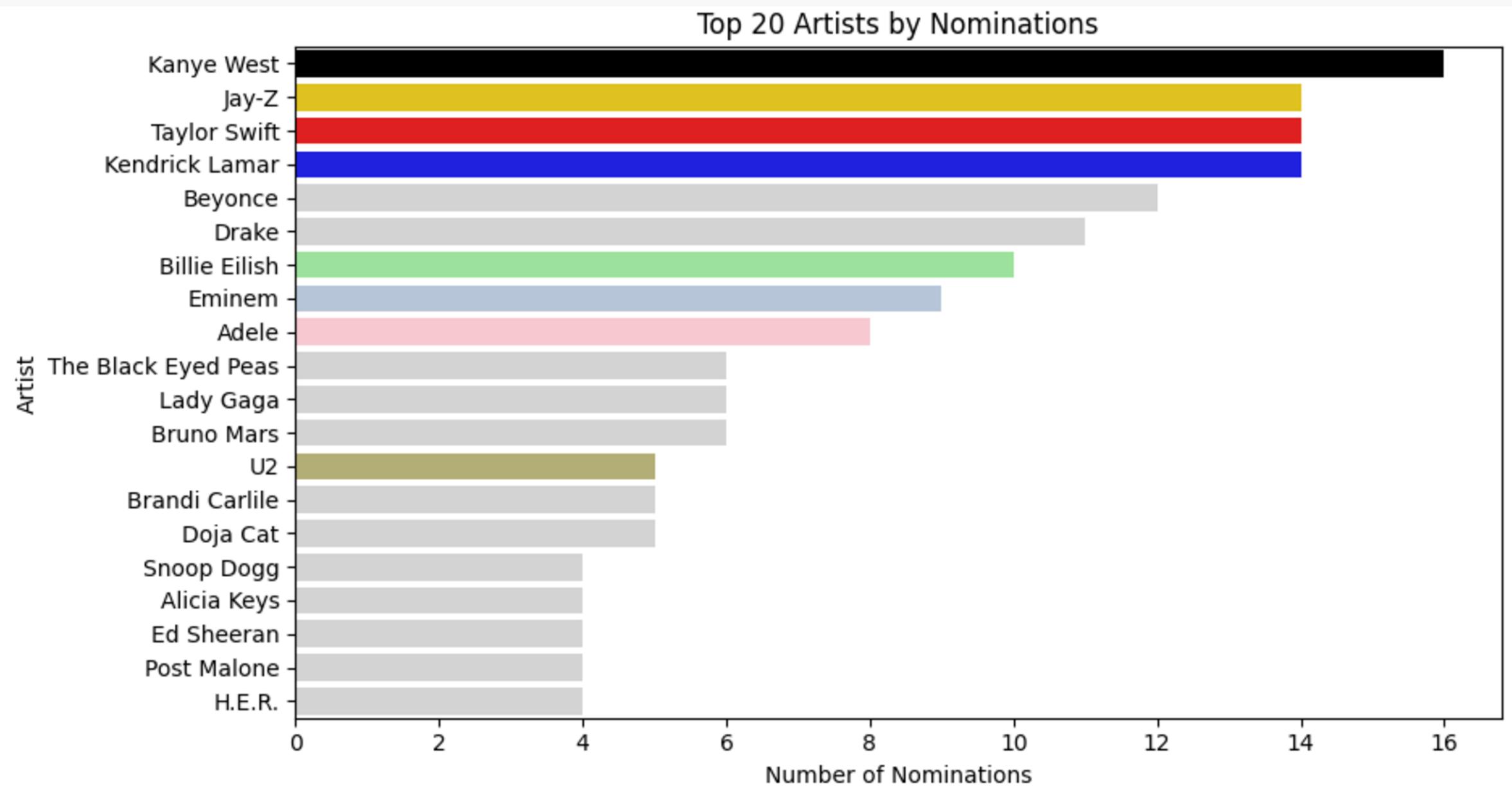
Who is winning grammys?

8.16 %

nominees

1.7%

winners

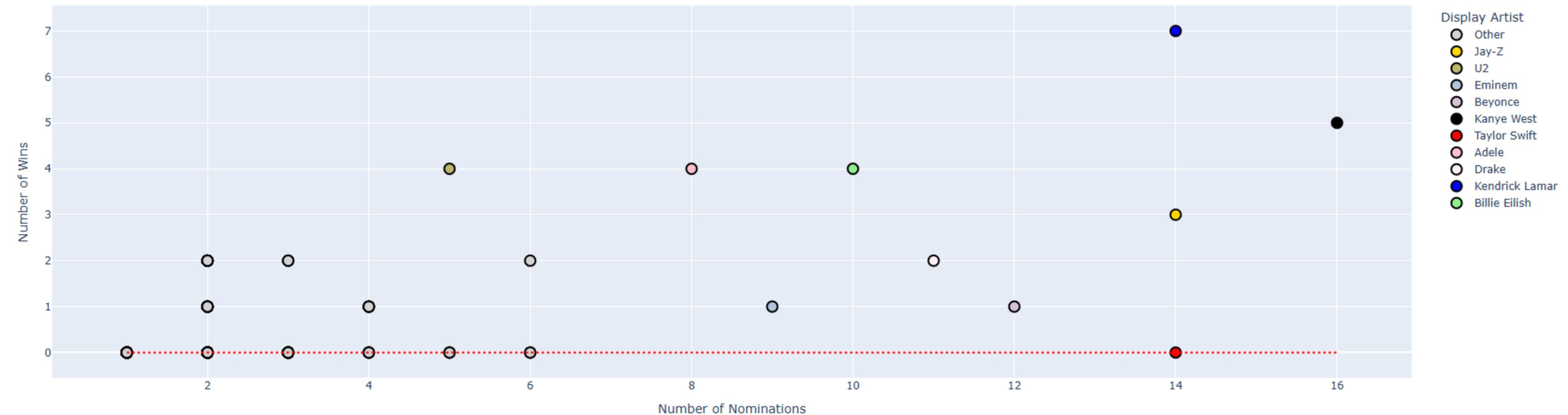


Before taylor swift

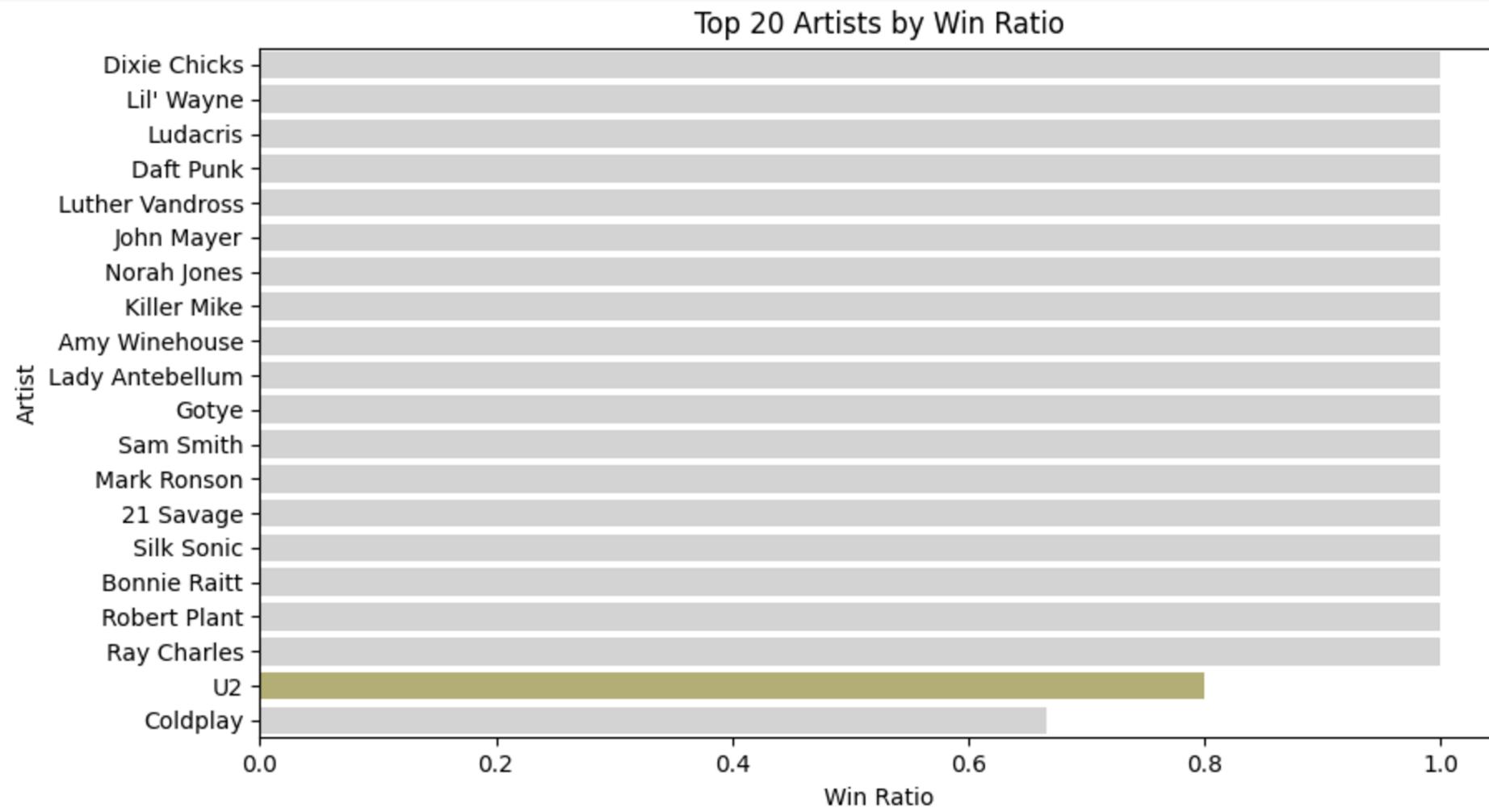
Who is winning grammys?



Nominations vs Wins (Interactive)

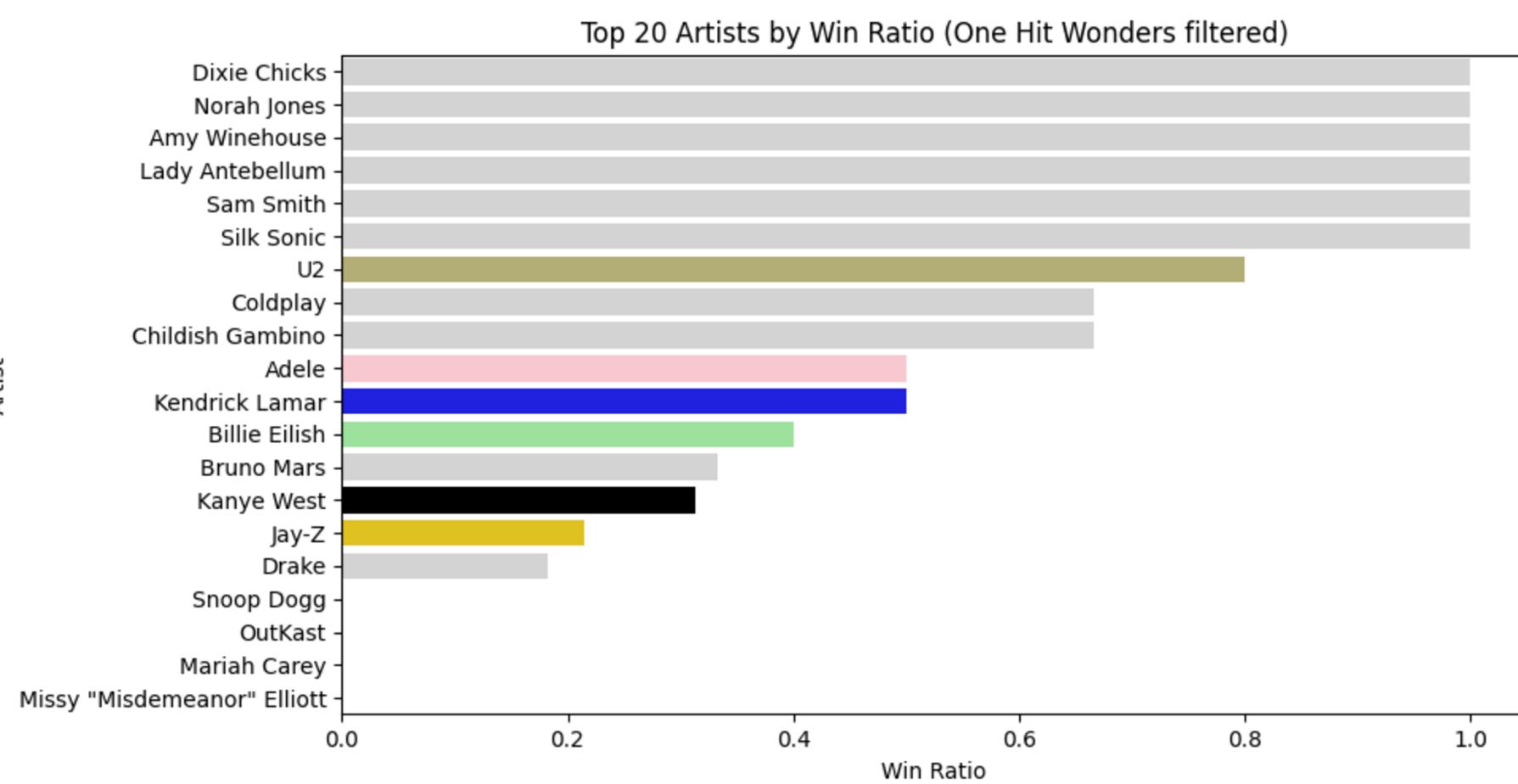


Who is winning grammys?



Interestingly winrate
put both

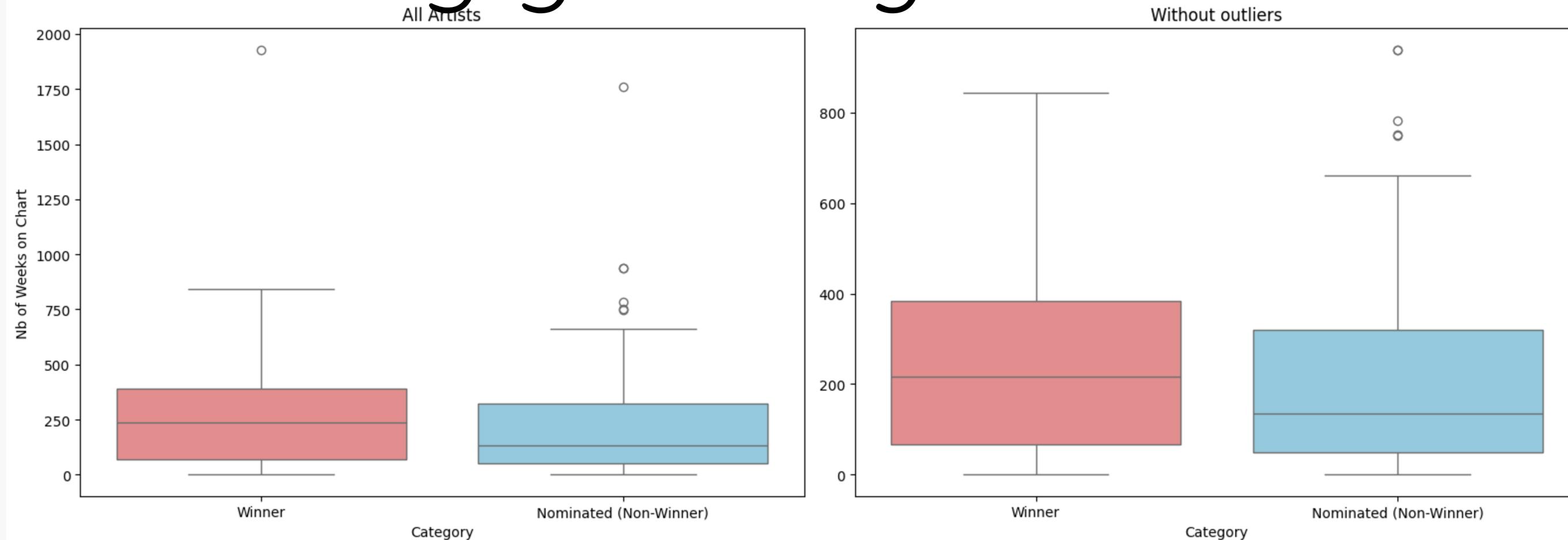
When she says 30%



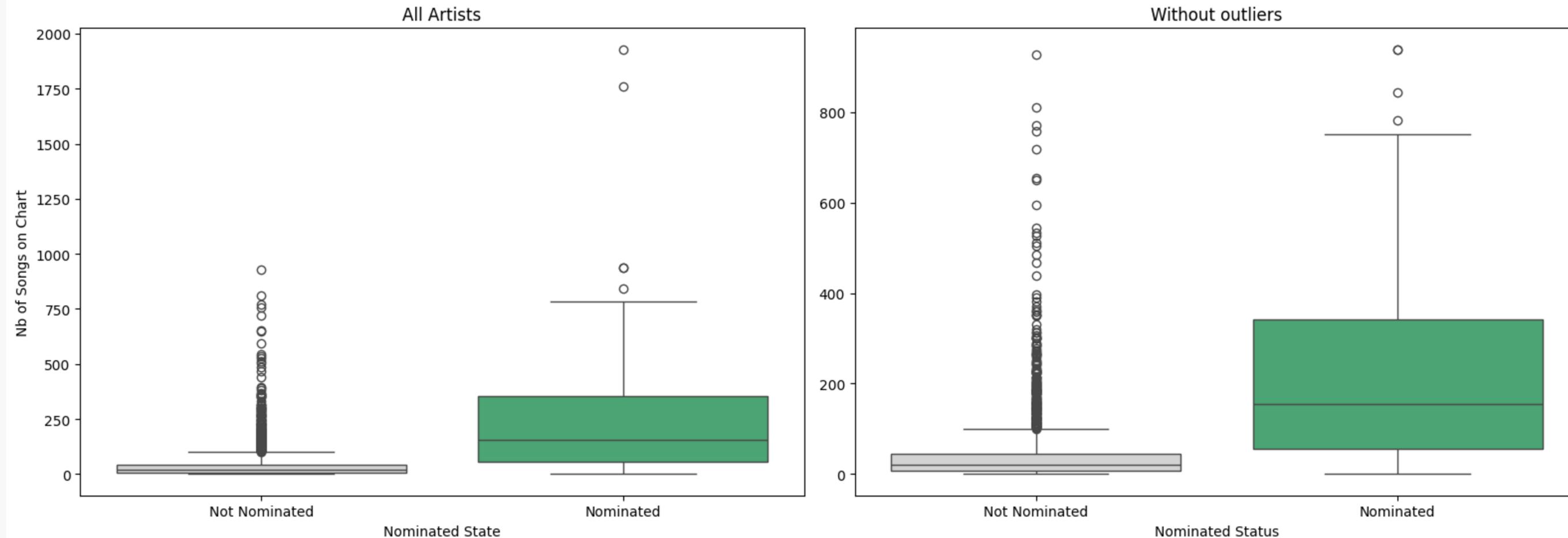
29.26%
one hit
wonders

Who is winning grammys?

Distribution of Chart Weeks by Grammy Status

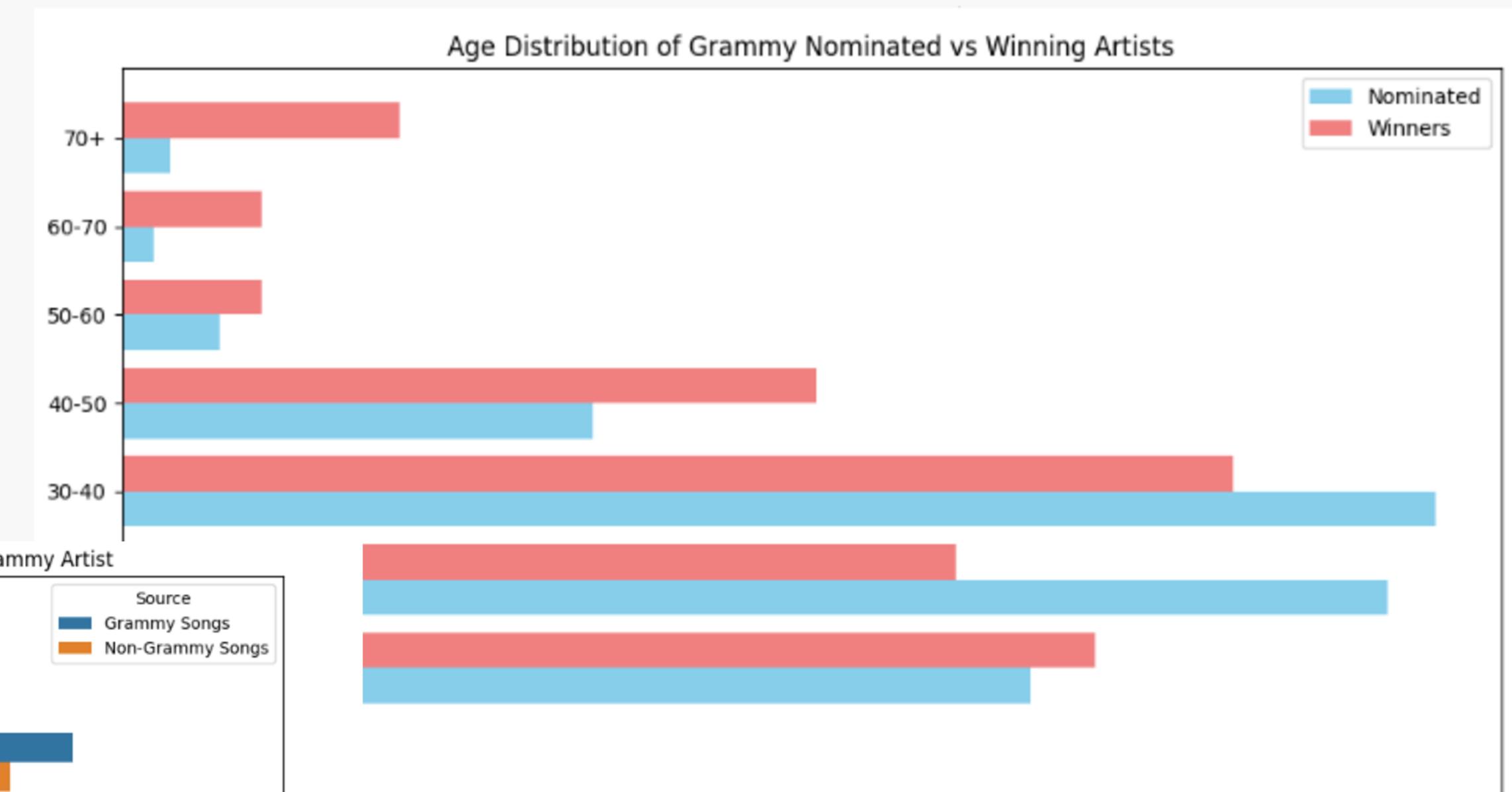
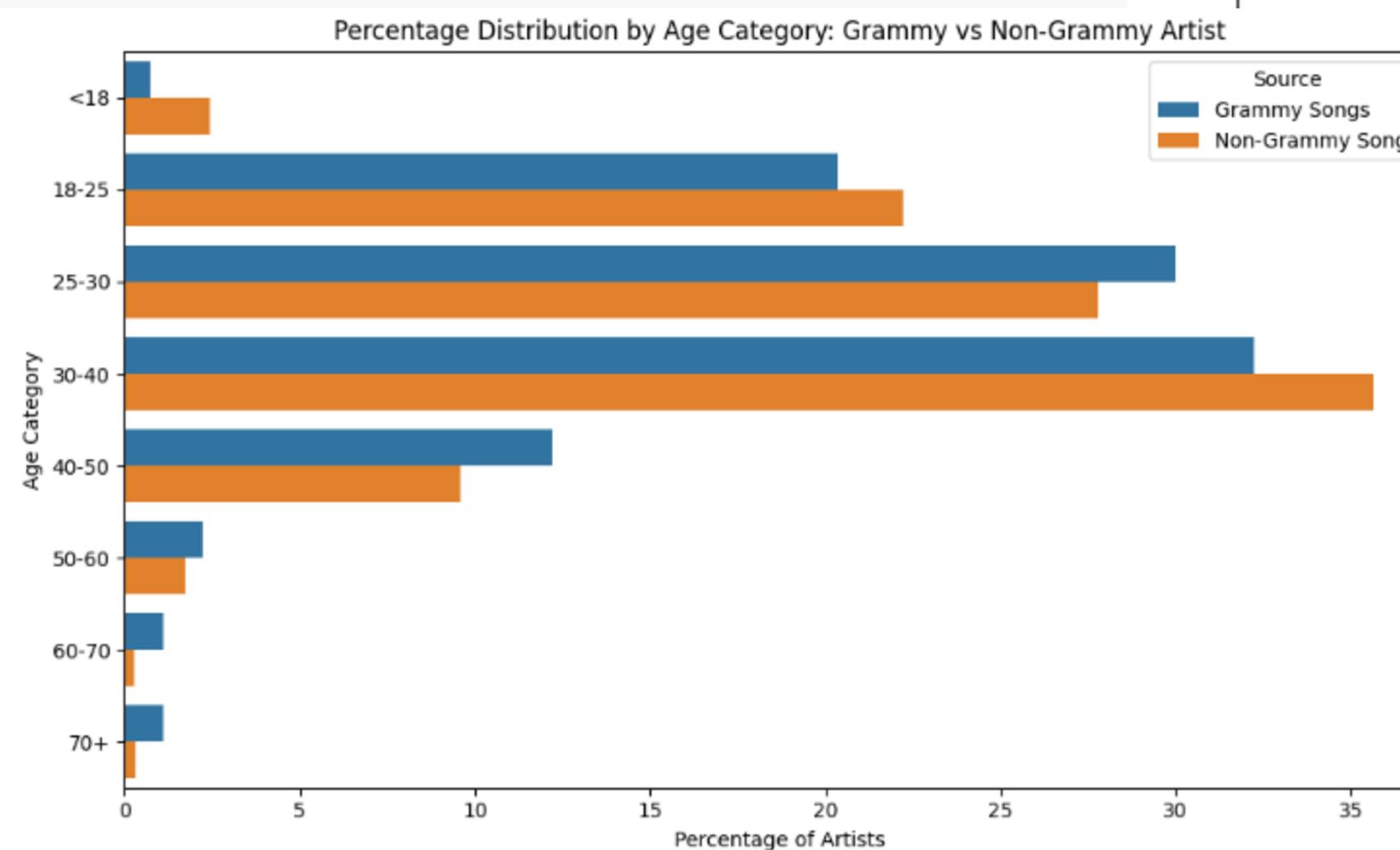


Distribution of Chart Weeks by Grammy Status

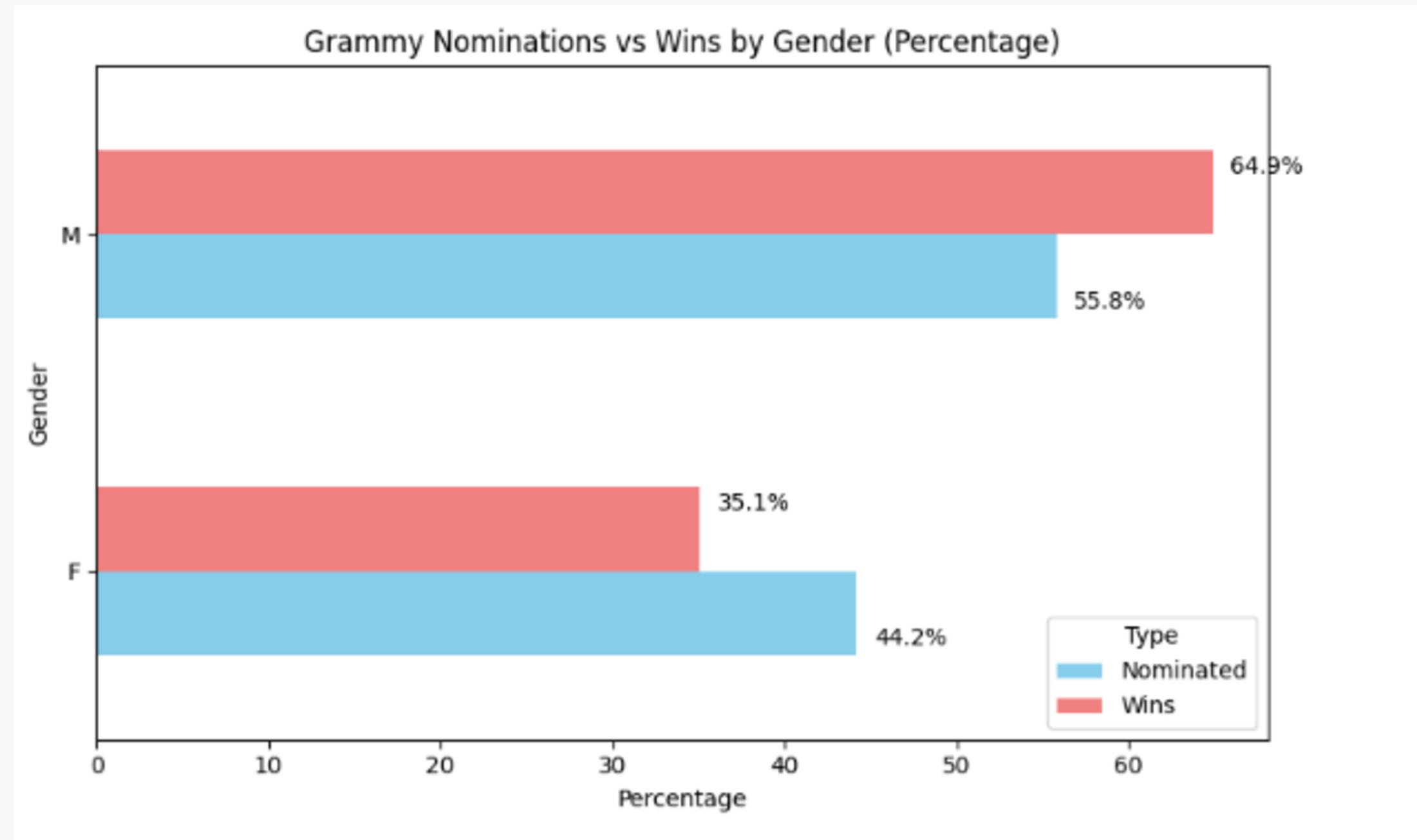


Age Analysis

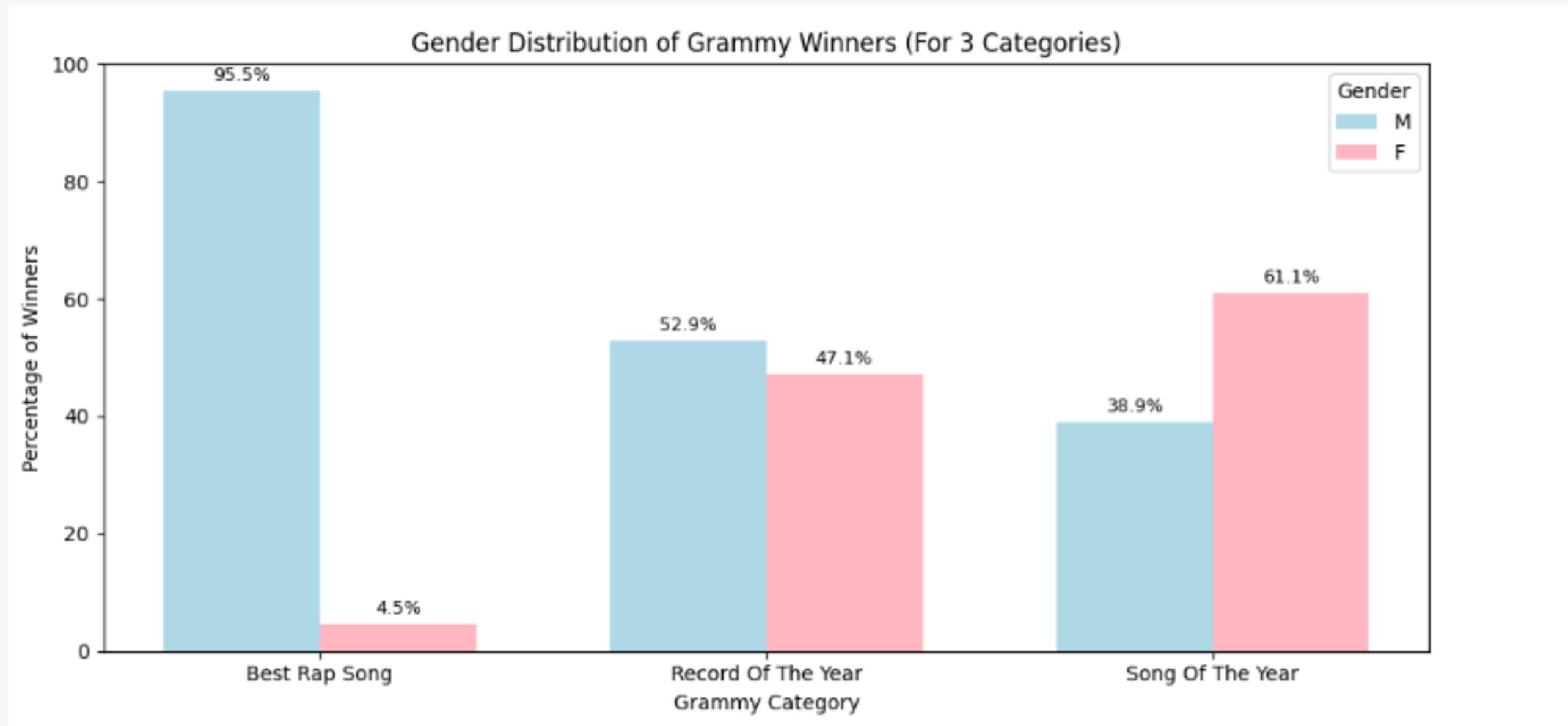
8 categories



Gender Analysis



Gender Analysis



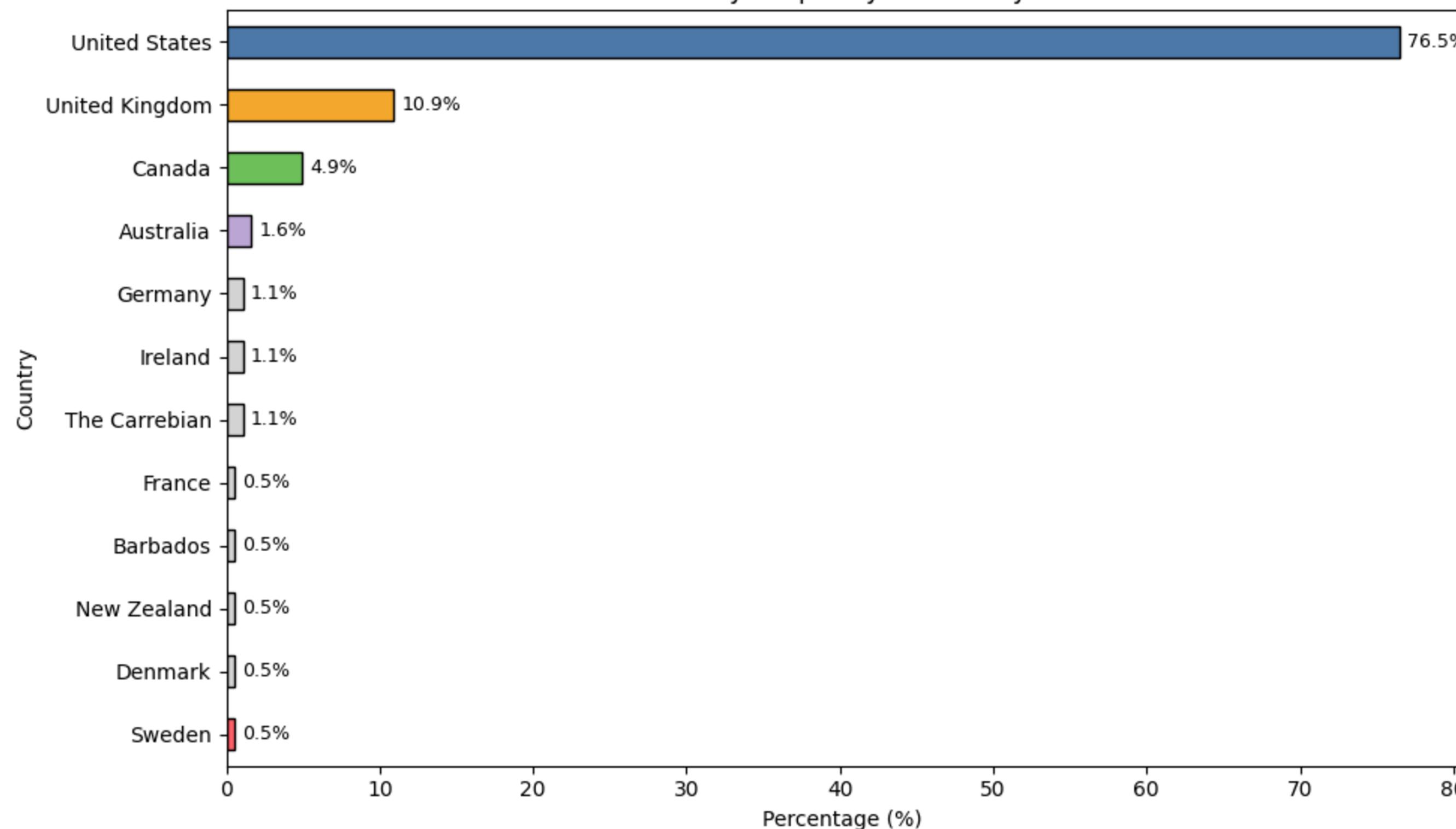
Country Data

76.5% US

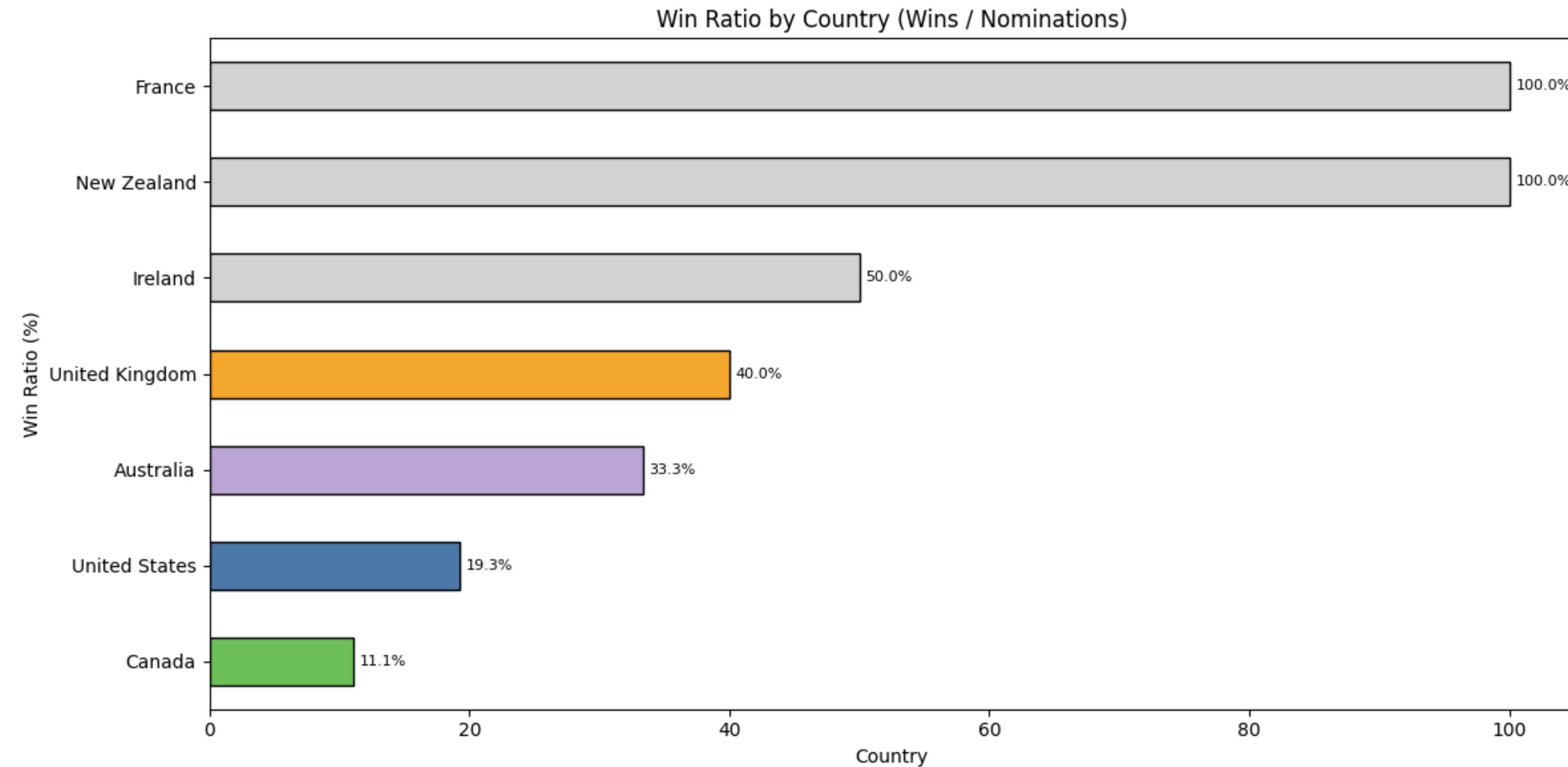
56 Countries
billbaord

10% missing
data from
total

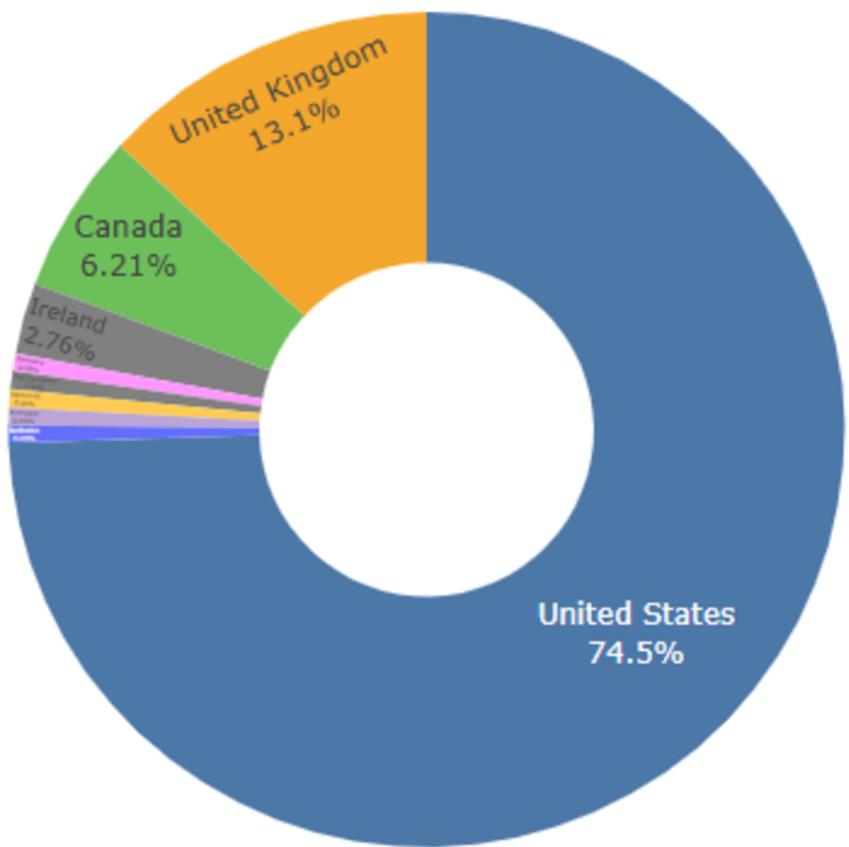
Country Frequency in Grammys



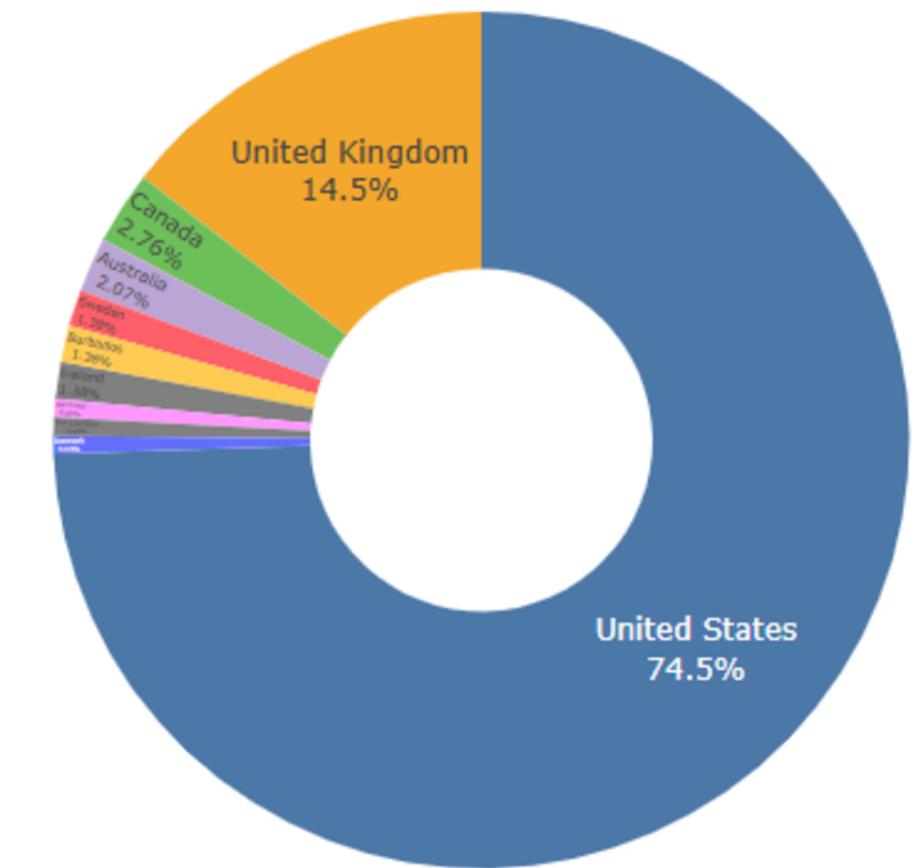
Country Data



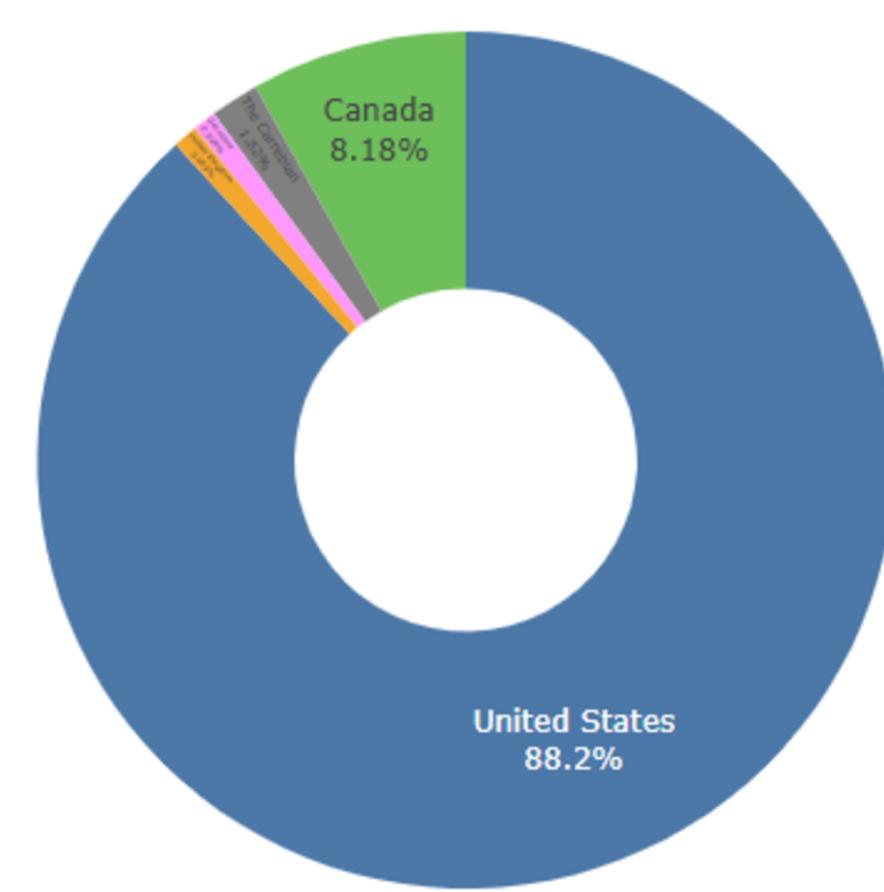
Country Data



best song the year

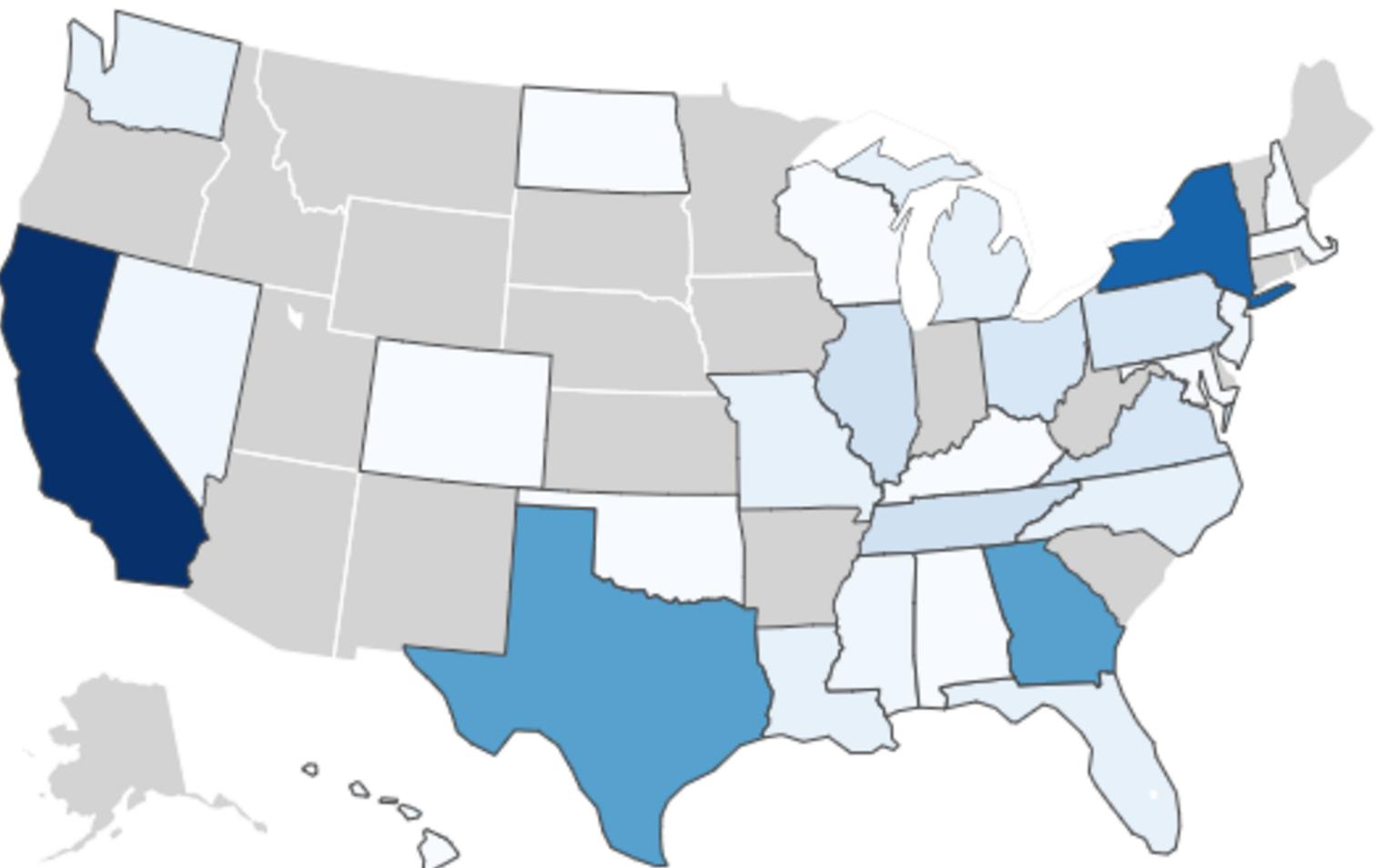


record of the year

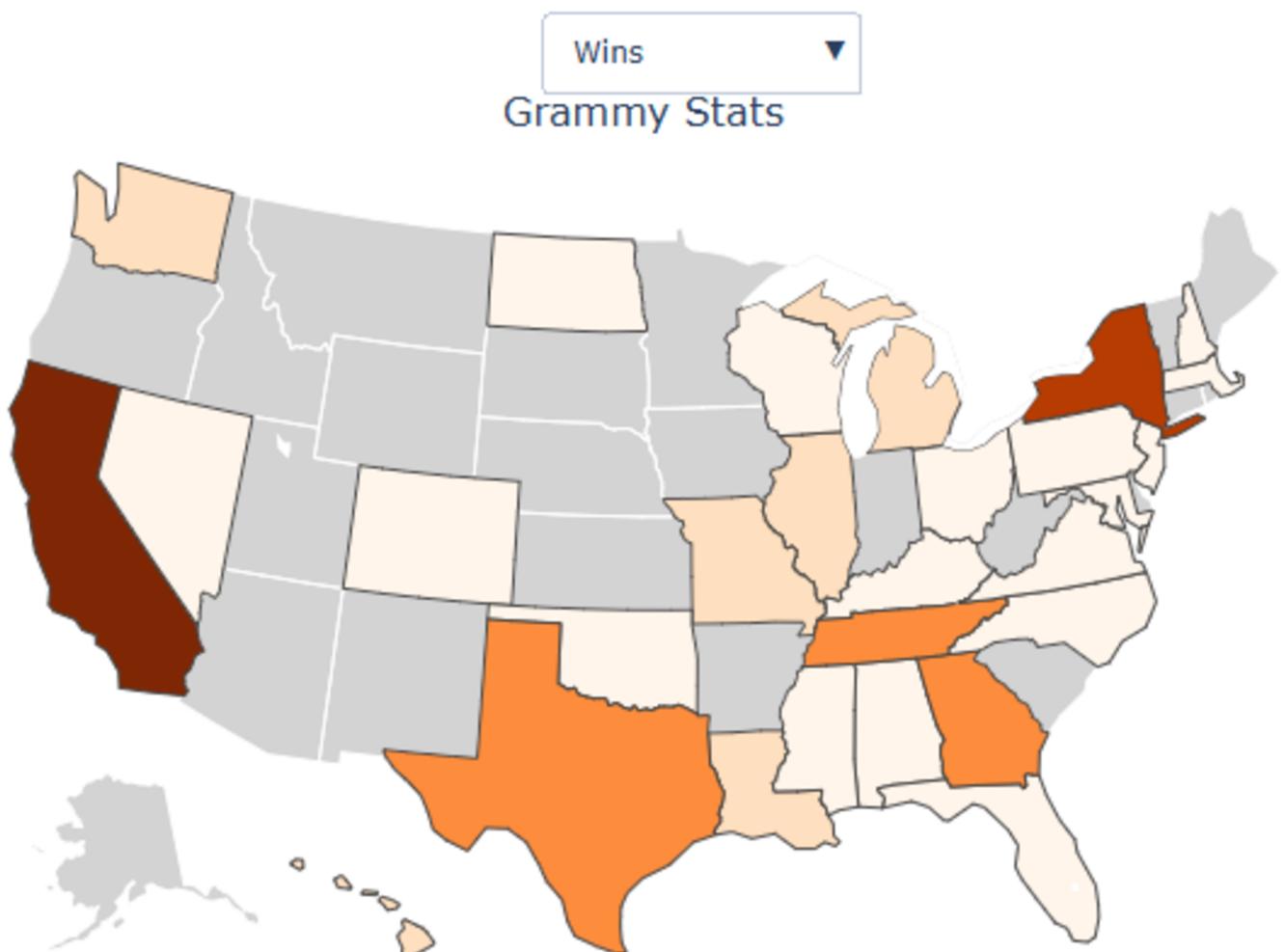


best rap song

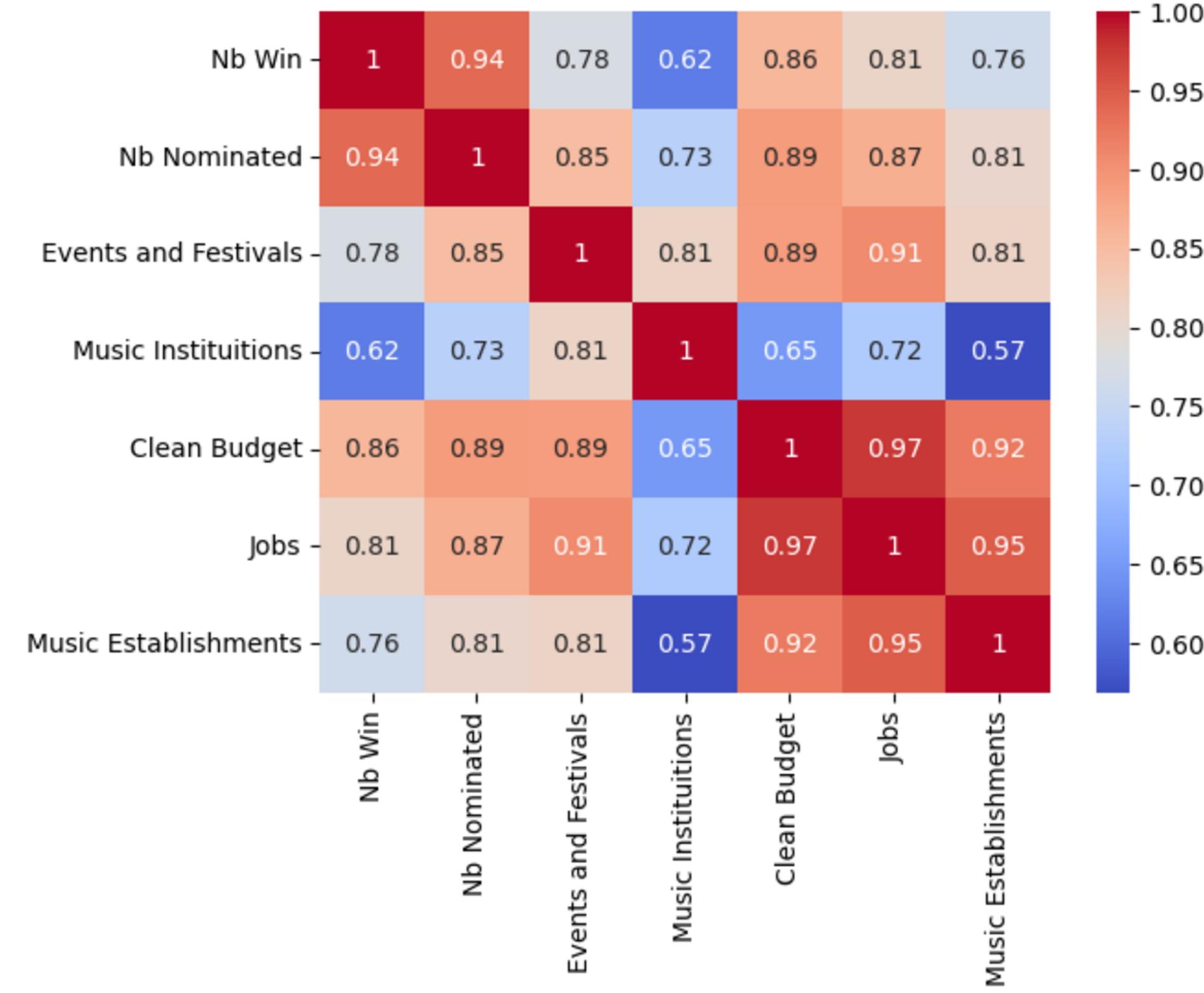
Grammy Nominations by US State



52% US
states

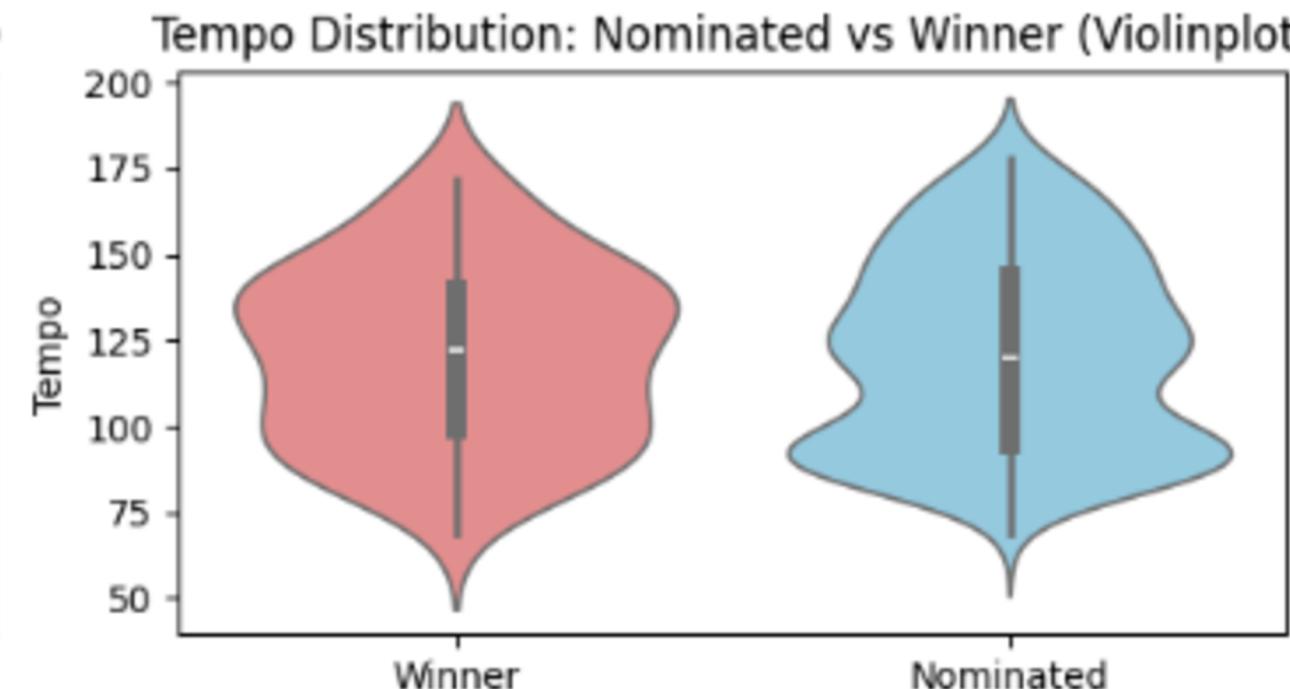
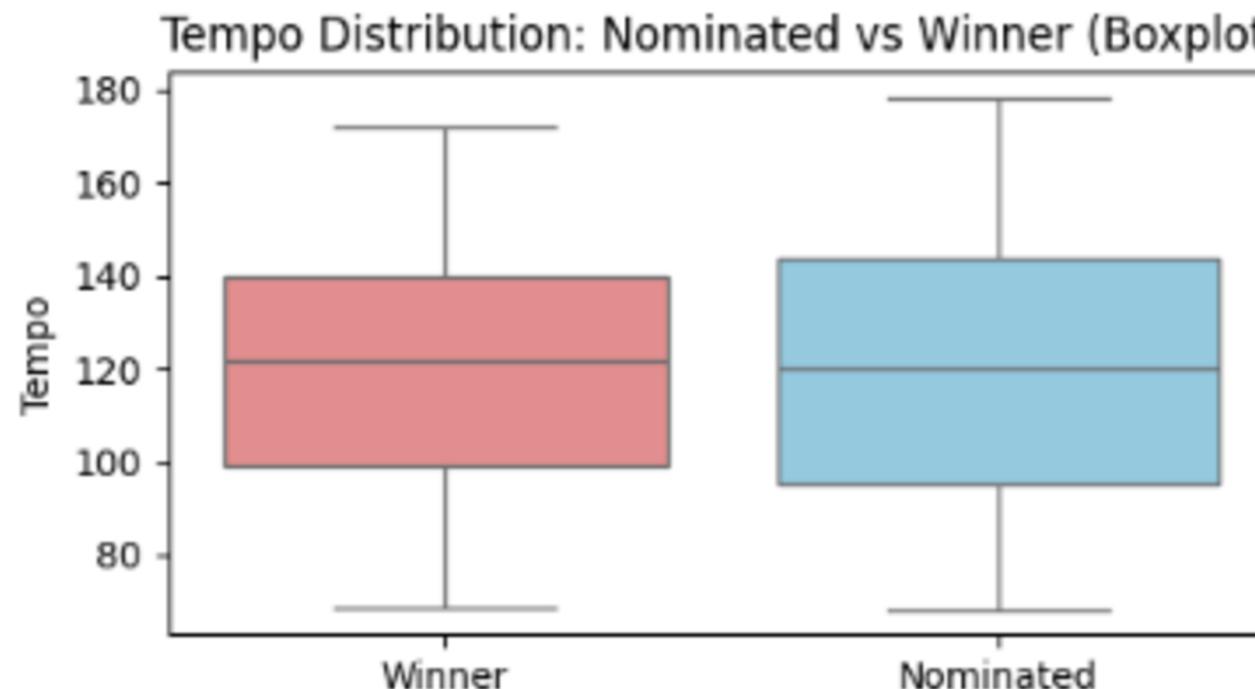


Correlation Matrix



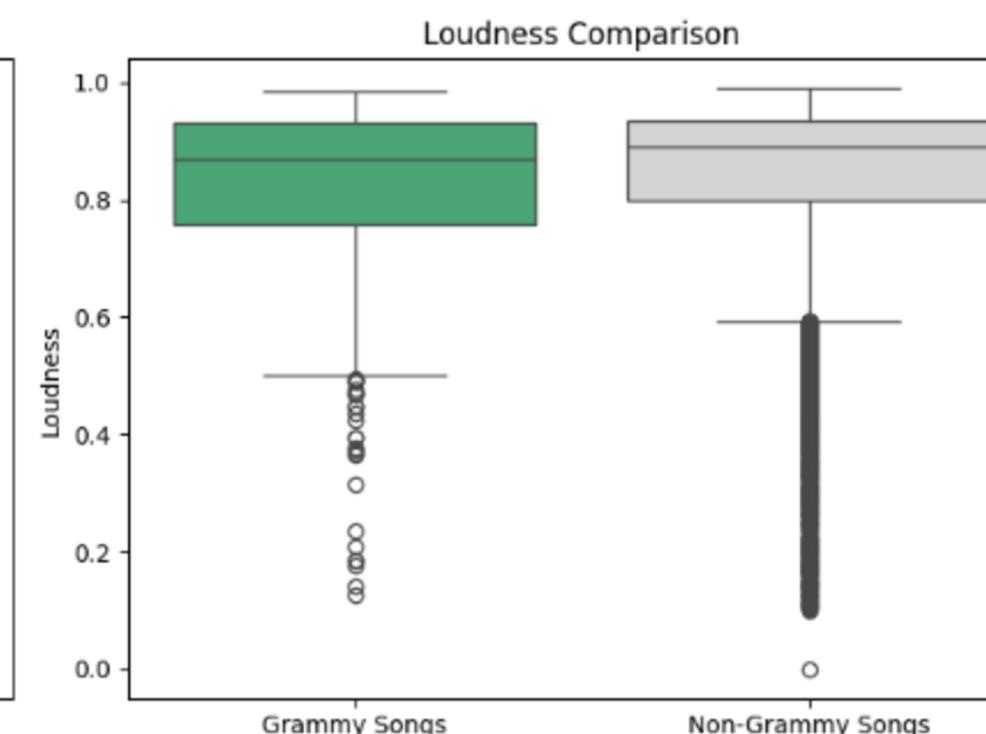
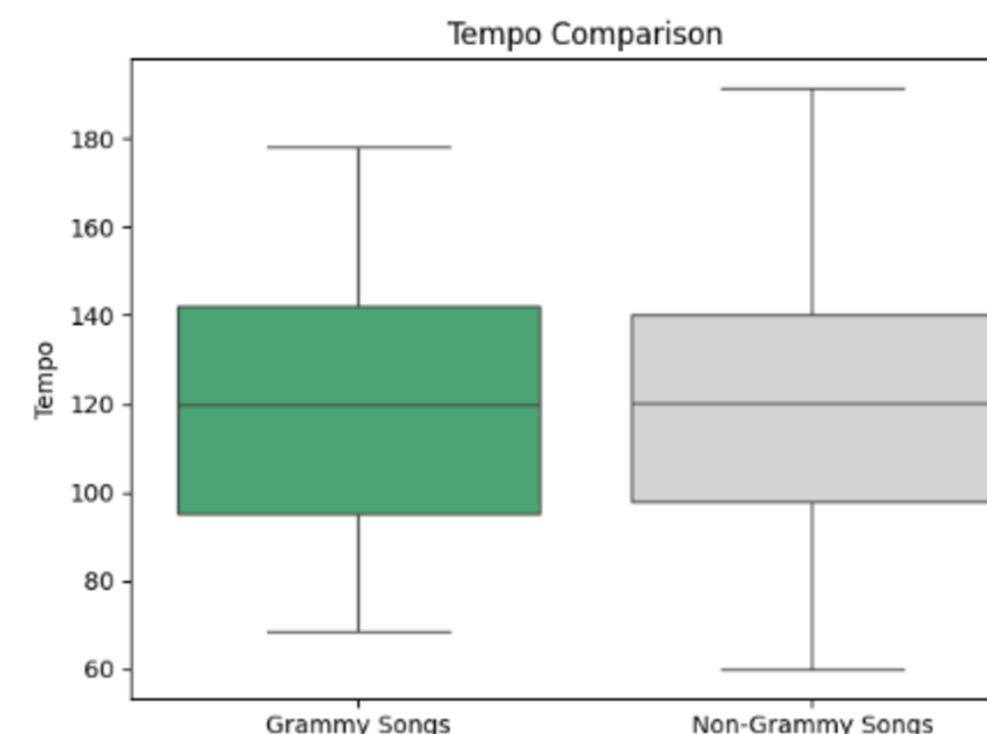
SONG FEATURES

Tempo

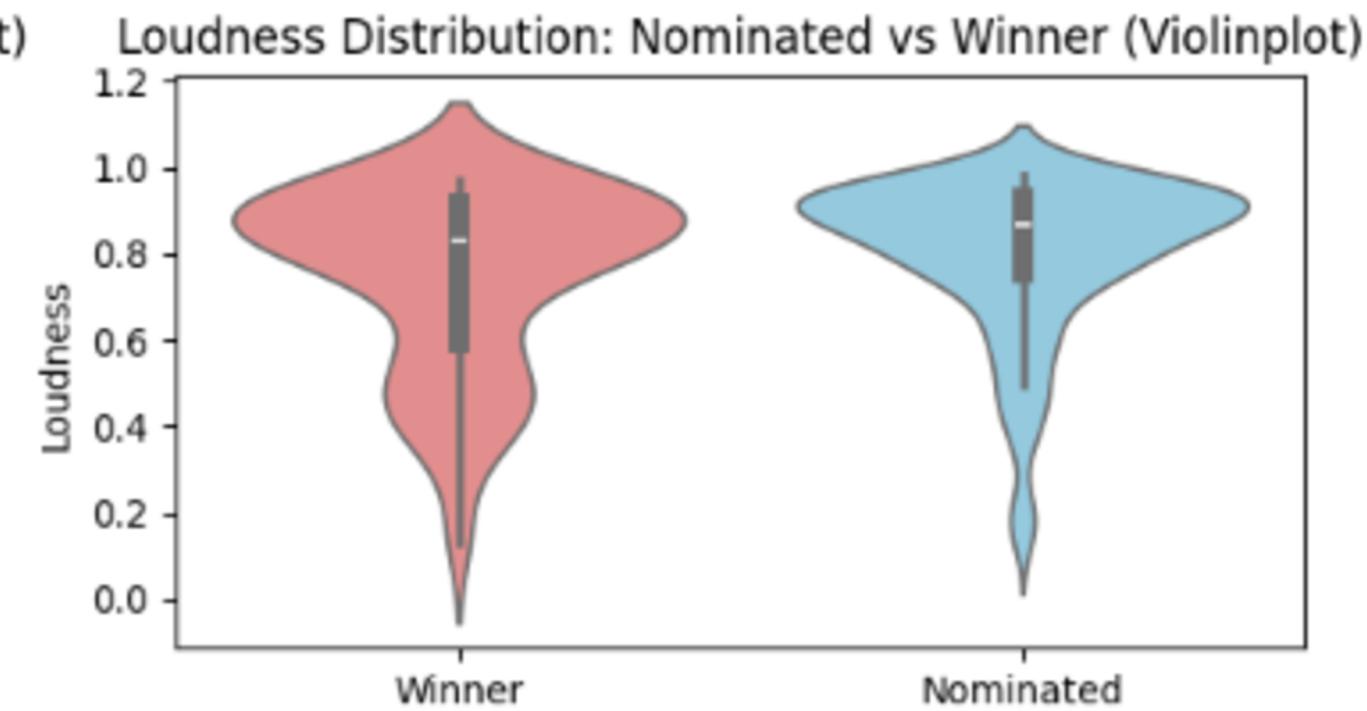
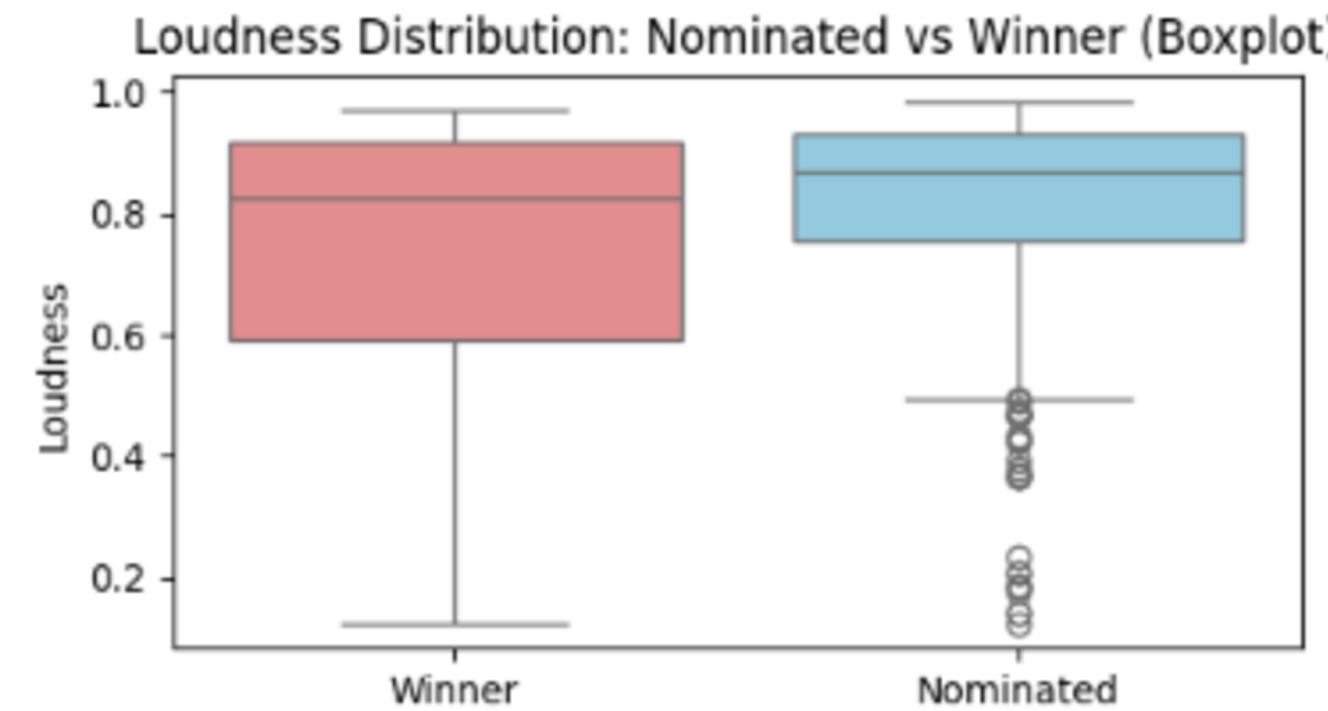


Winner more centralized in 130-140 BPM.

Comparison of the Distribution of Tempo and Loudness in Grammy Songs and Non-Grammys Song(2000-2024)



Loudness

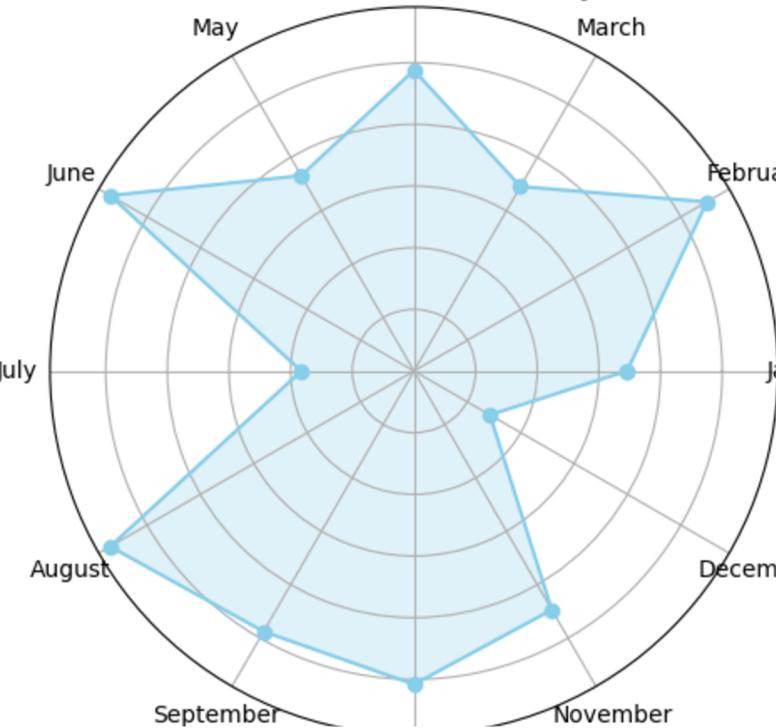


Winner positively
skewed

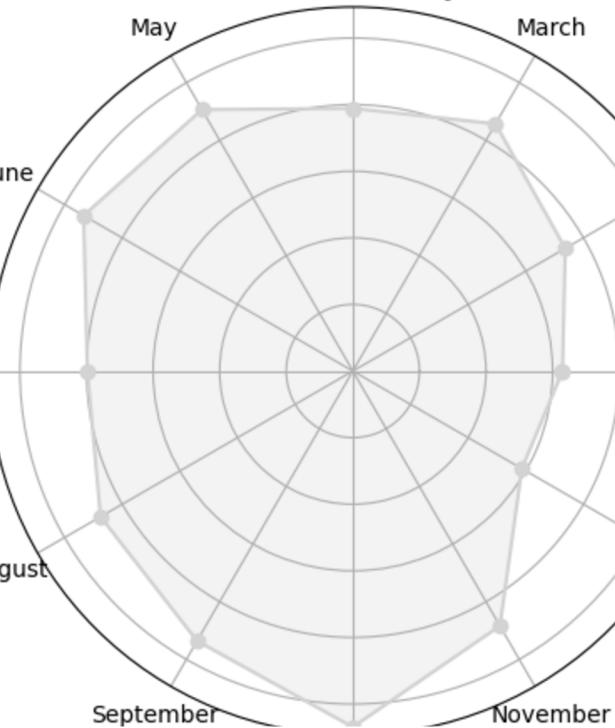
Release Date

Peak in
March and
October

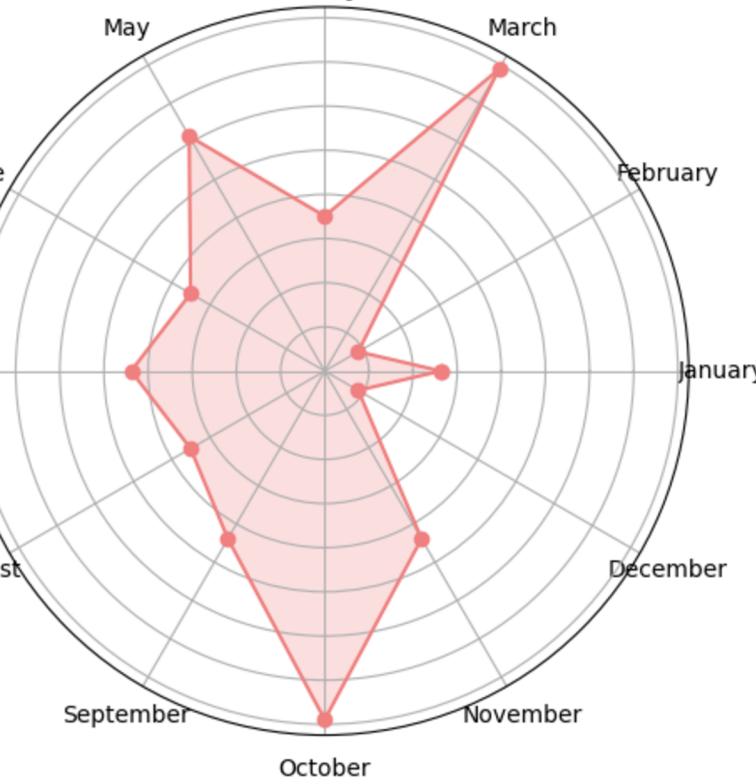
Nominated (Non-Winner) - Monthly Distribution



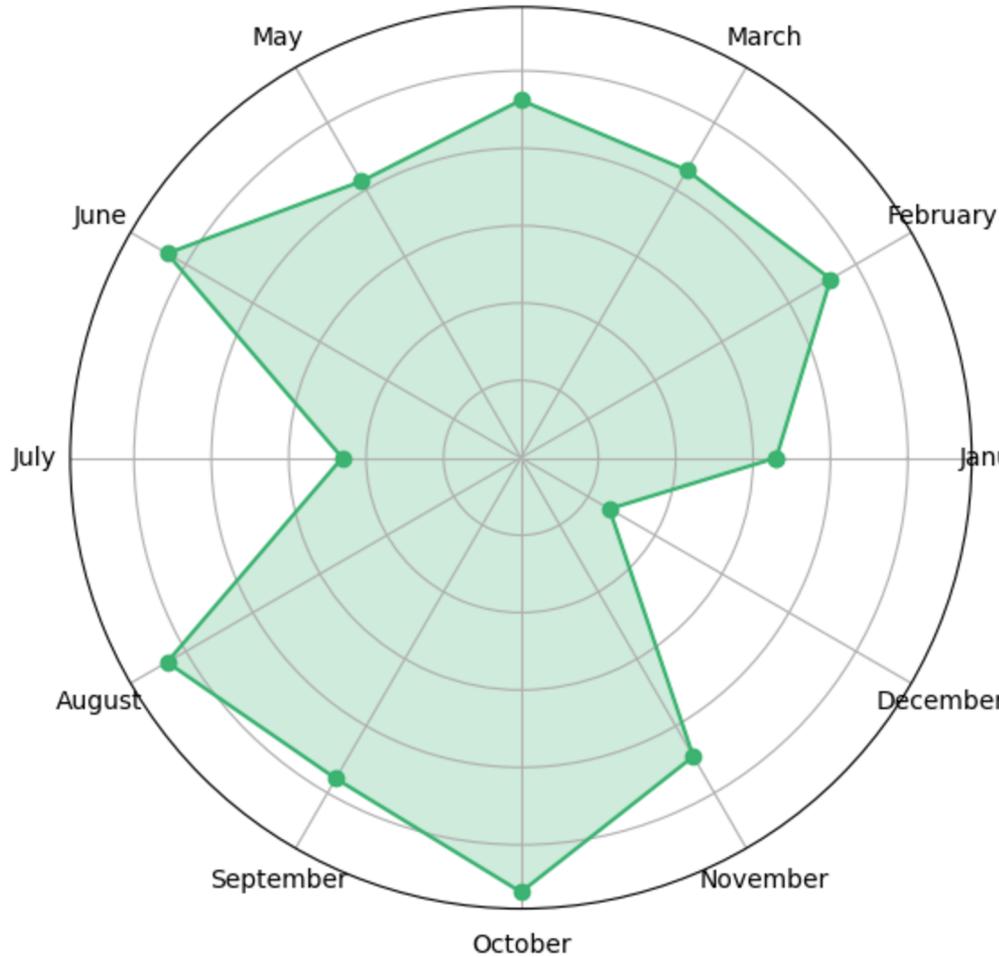
Non-Nominated - Monthly Distribution



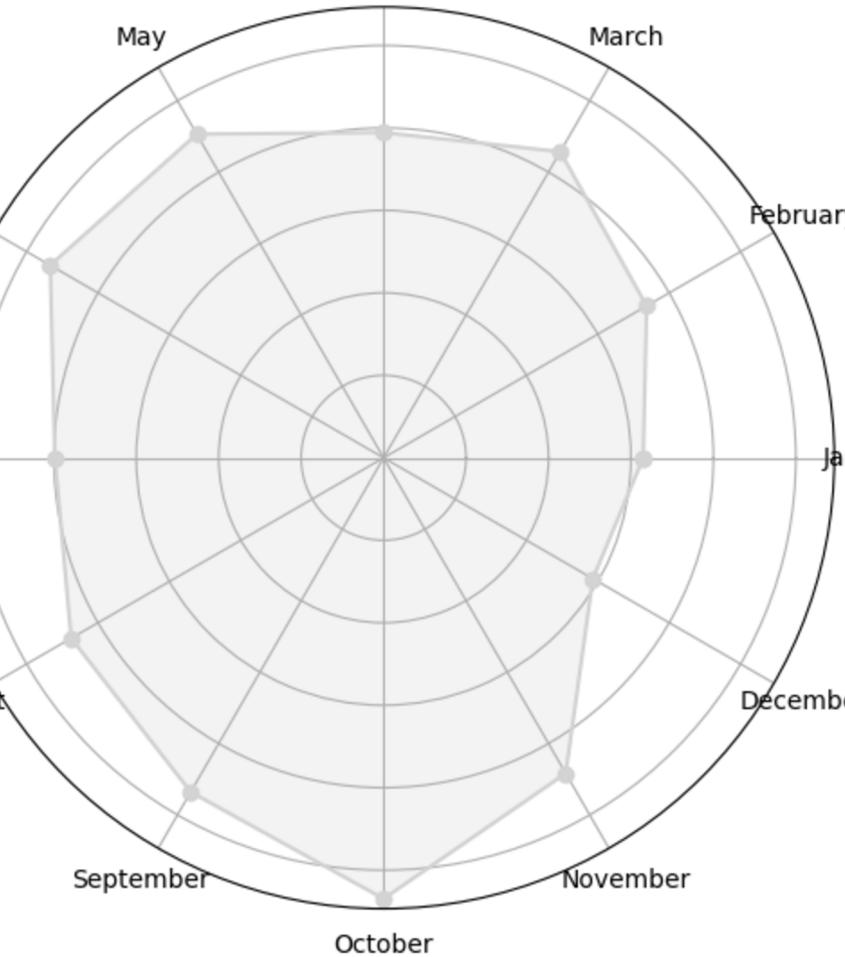
Winner - Monthly Distribution



Nominated or Winner



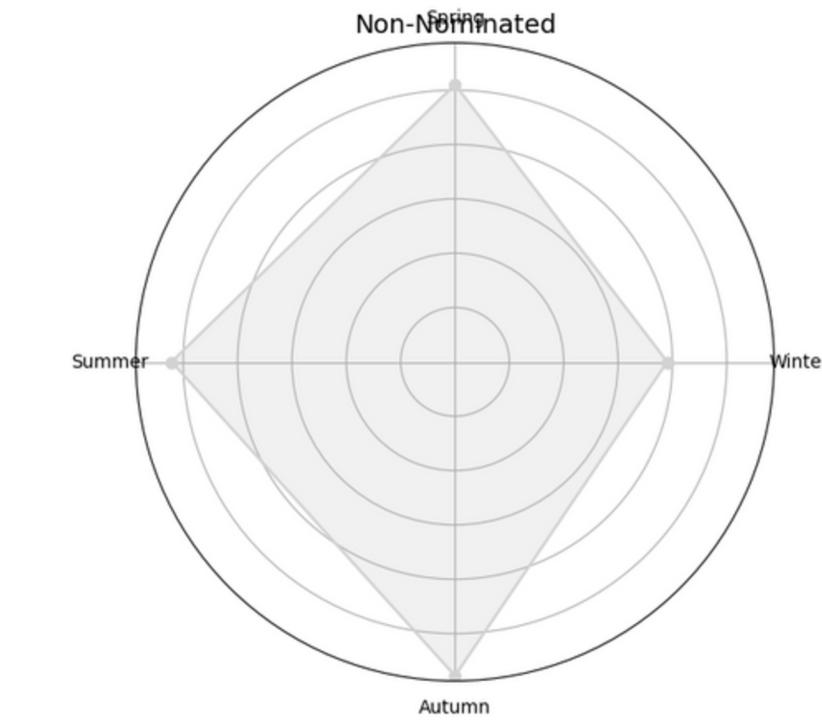
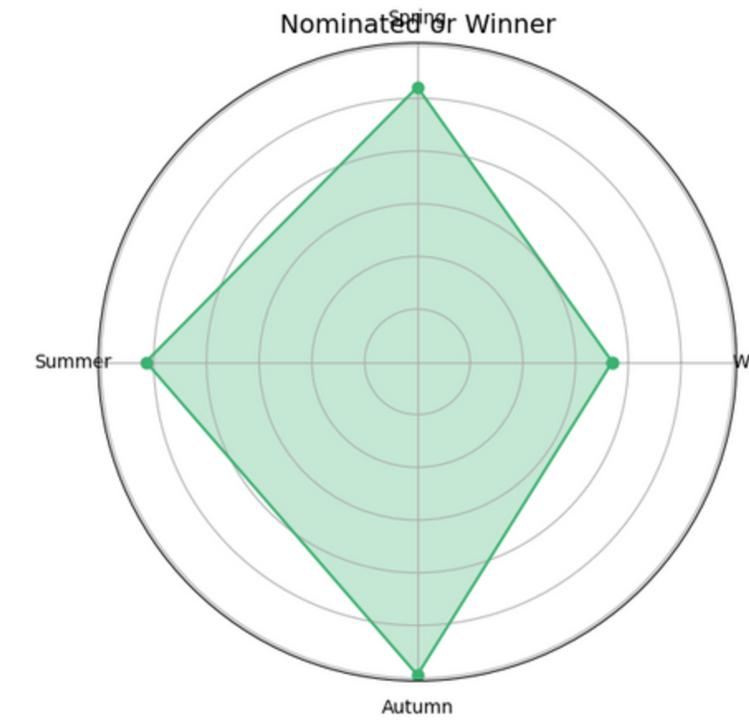
Non-Nominated



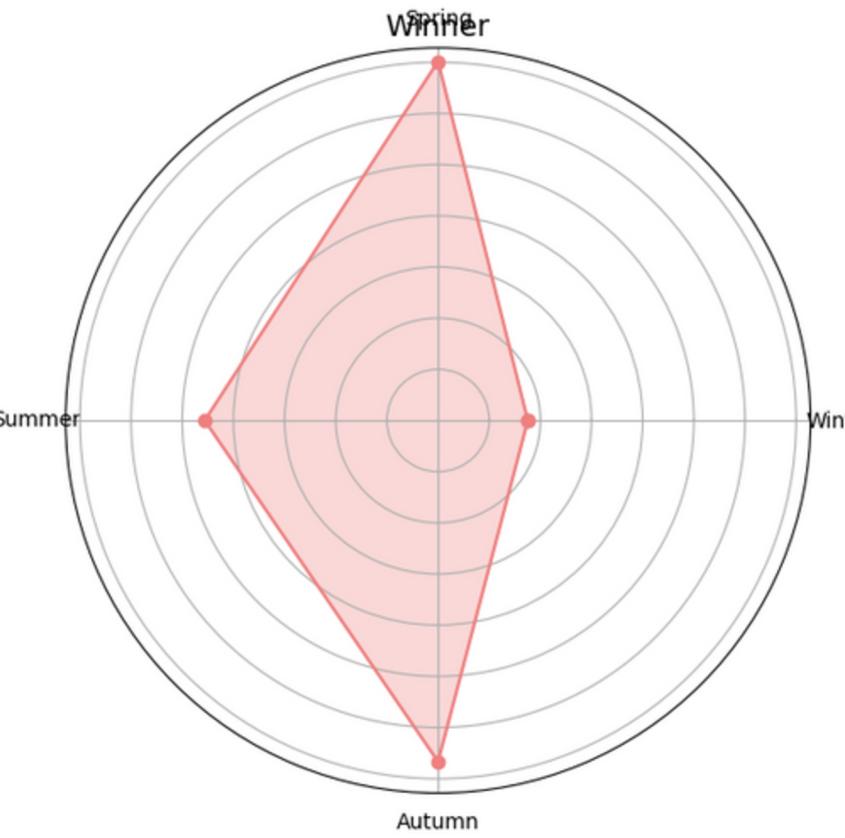
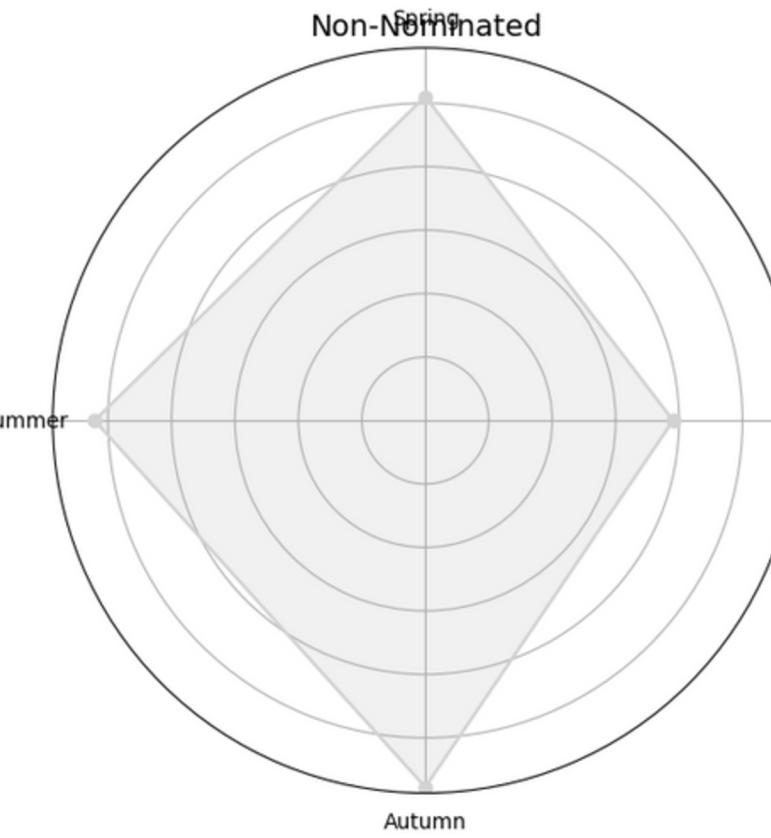
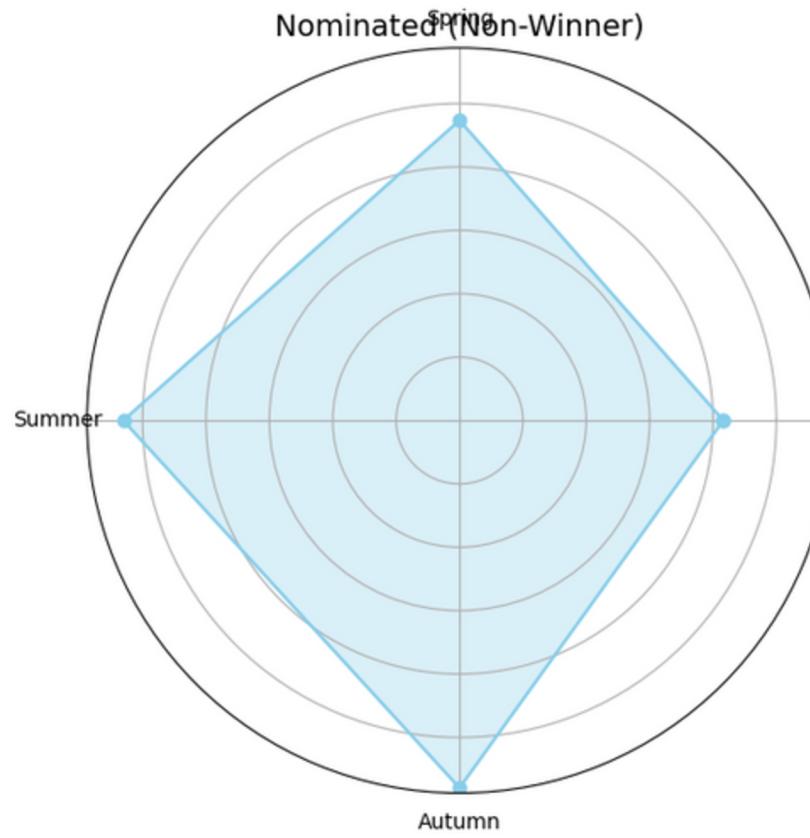
Submission Timeline
of Grammys:
October of the
previous Year

Release Date

Seasonal Distribution by Category (Polar View)



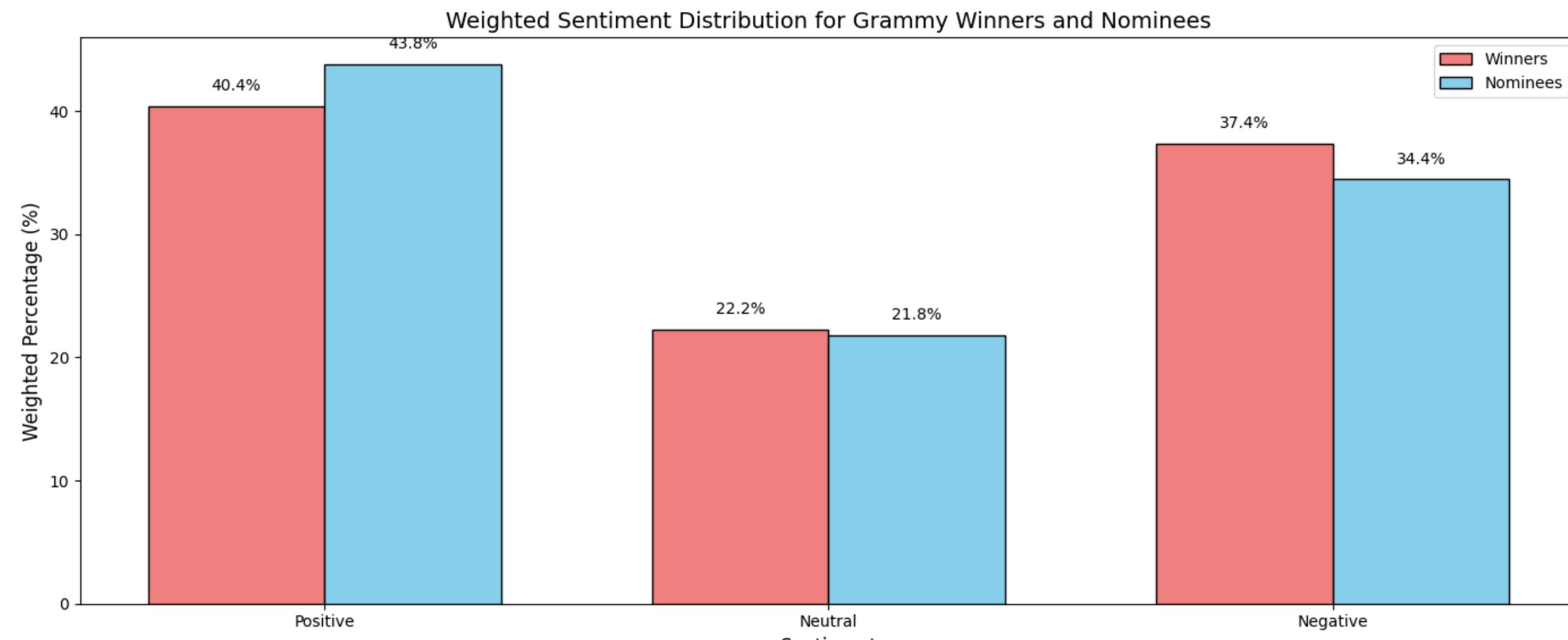
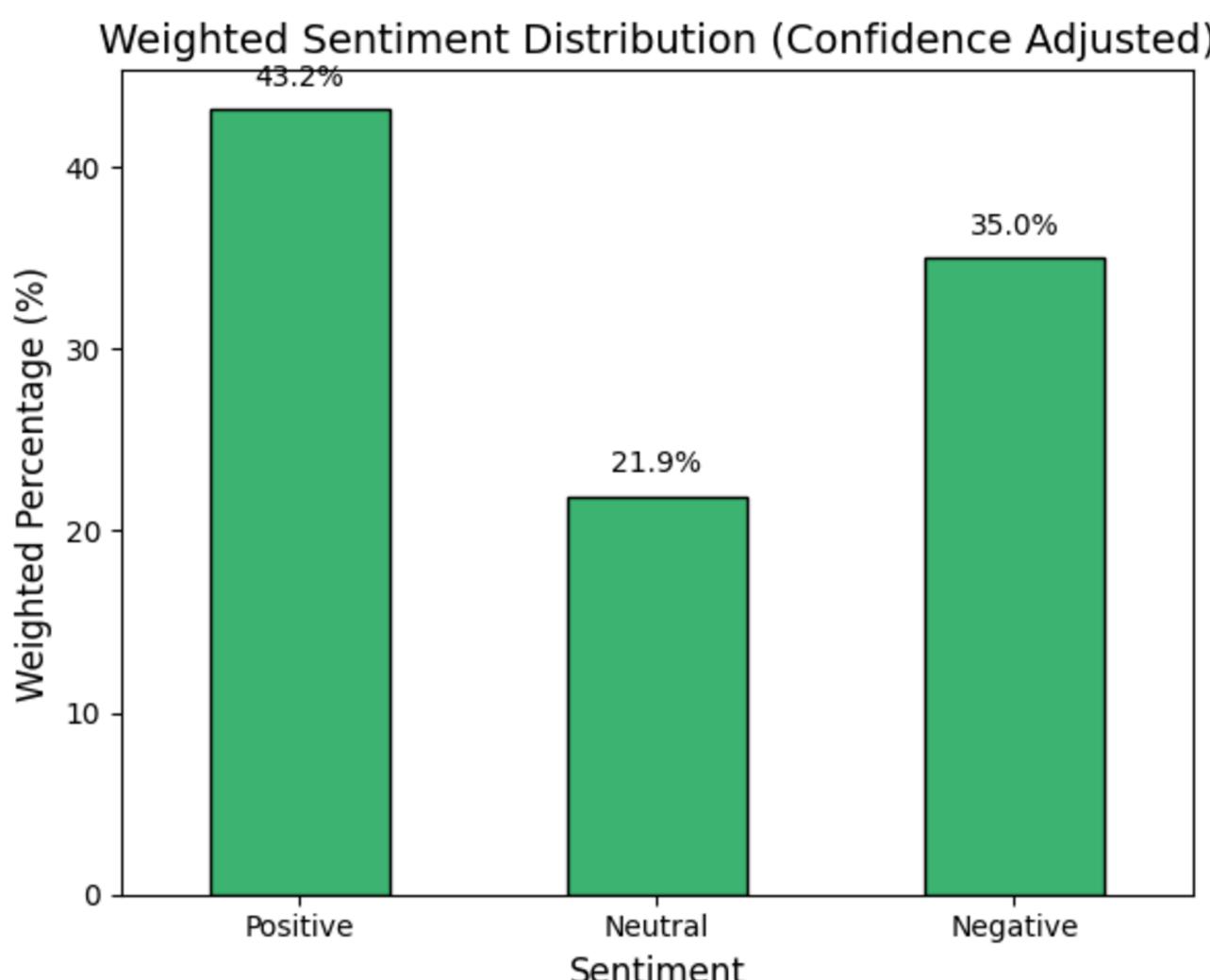
Seasonal Distribution per Grammy Category (Polar View)



Peak in
autumn and
spring

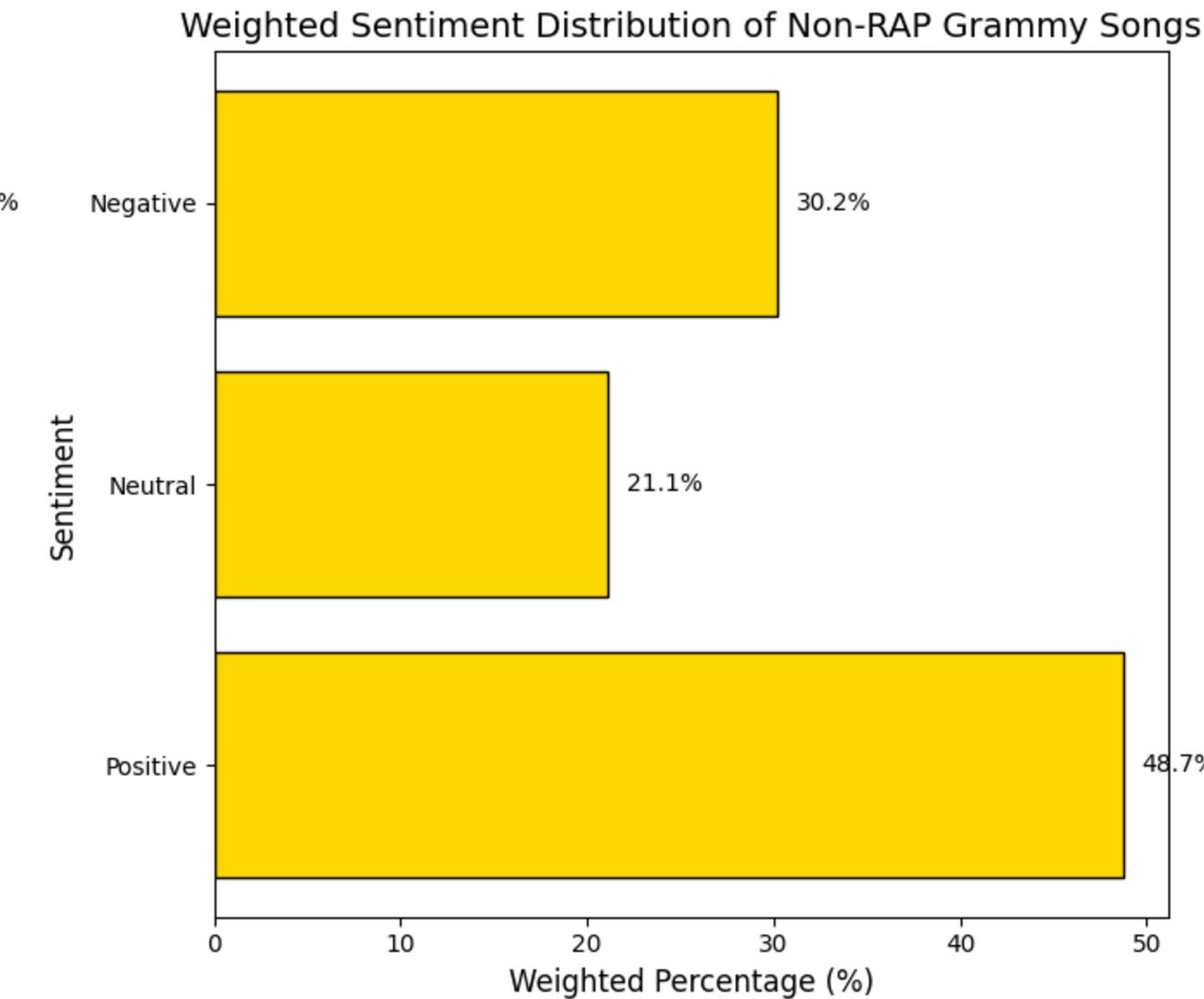
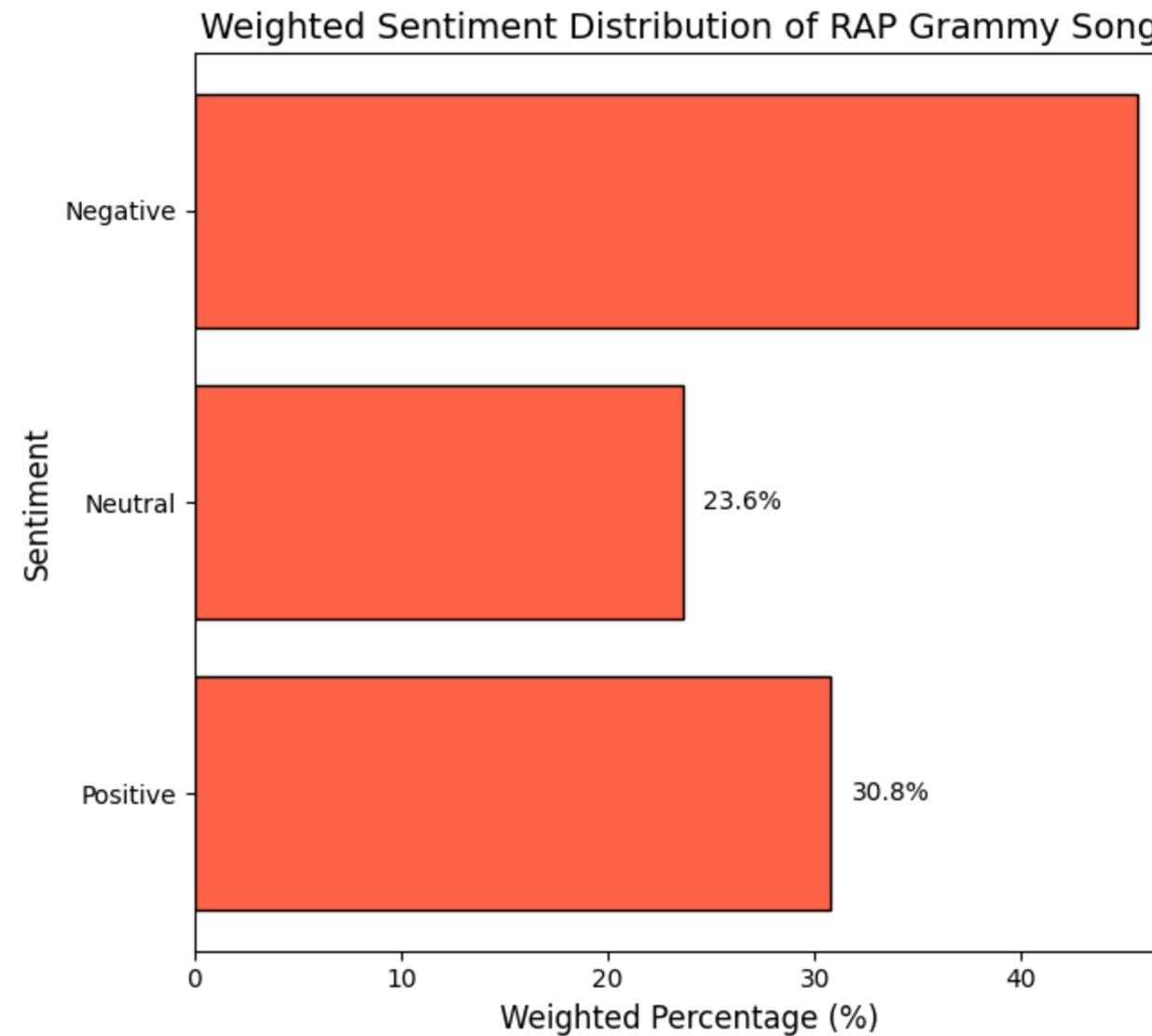
Lyrics Data- Overall

“15.4% missing data introduces uncertainty* ”



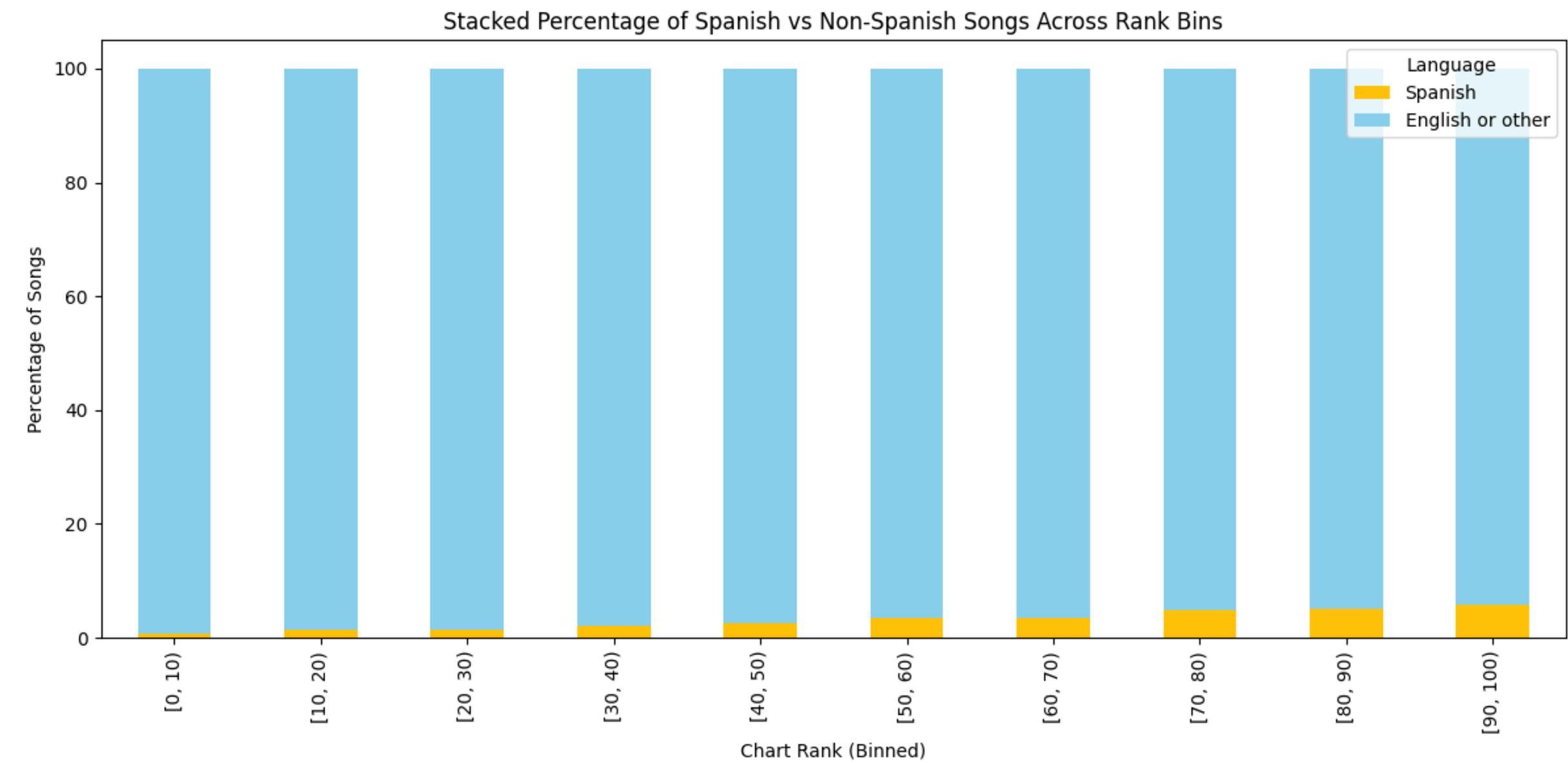
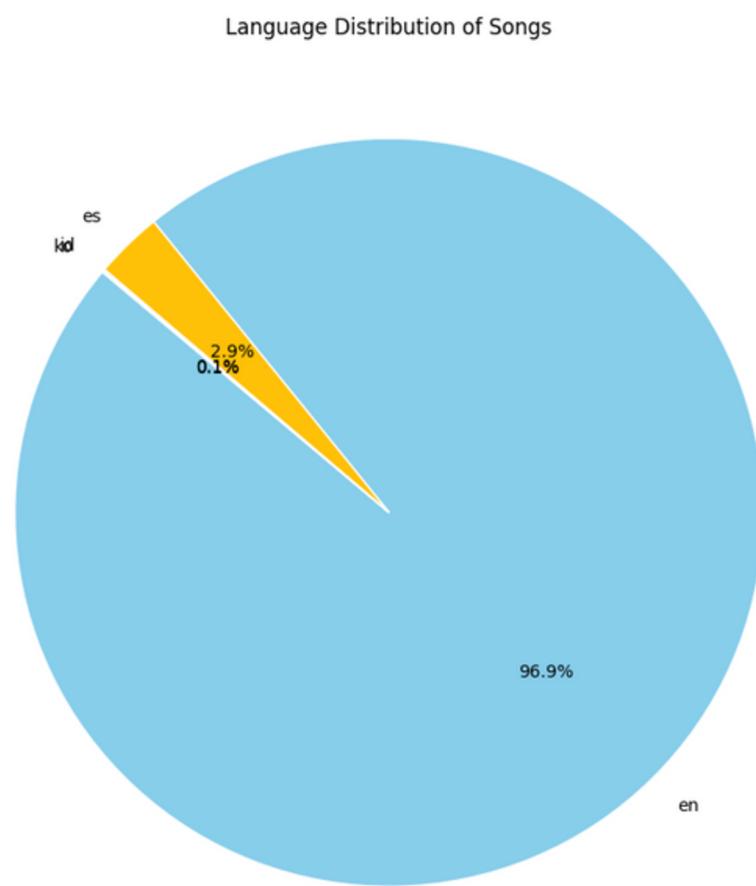
Lyrics Data- Sentiment by Genre

Sentiment labels were predicted using a multilingual sentiment classifier, and data was weighted by its confidence scores prior to the analysis*



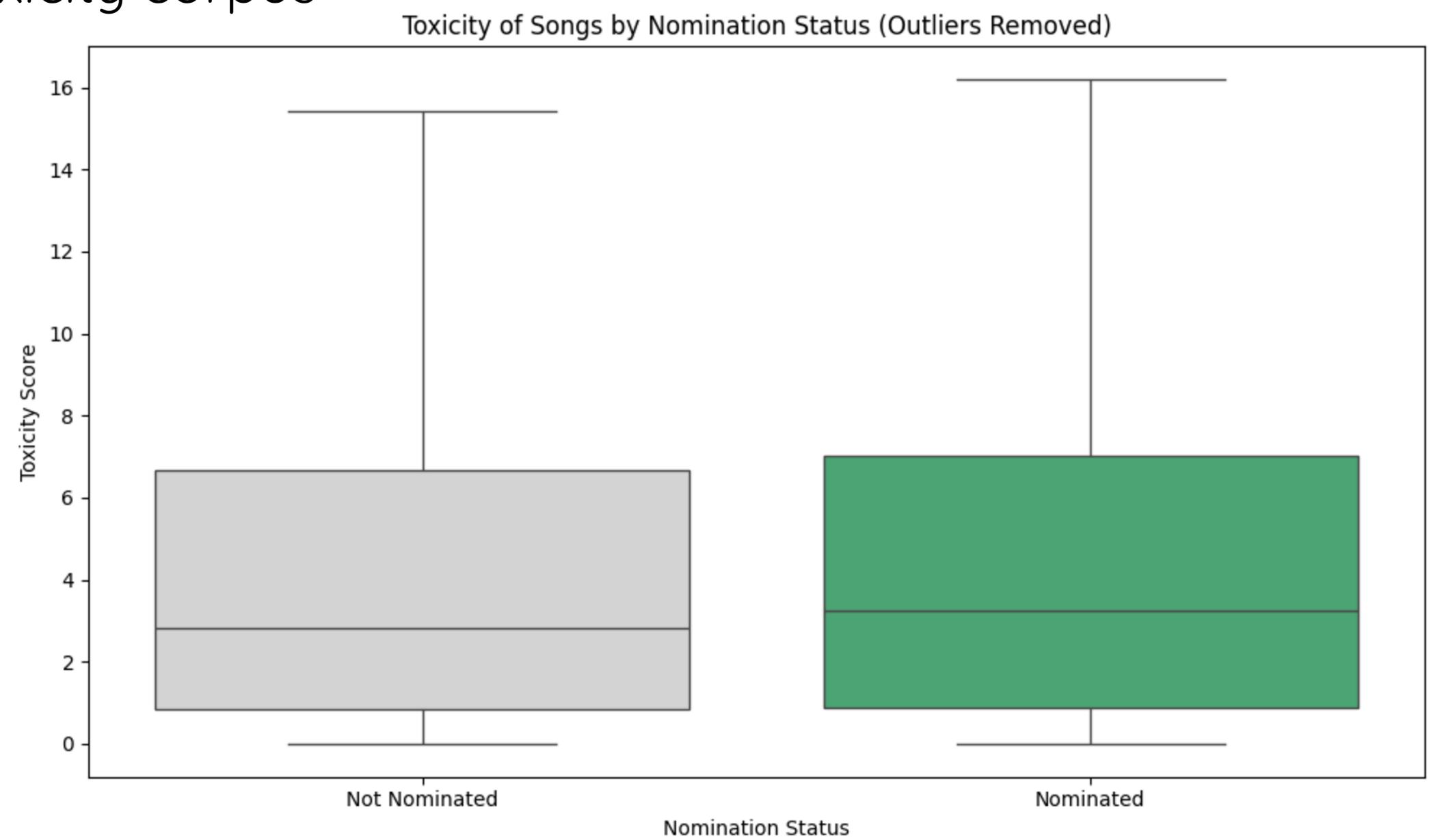
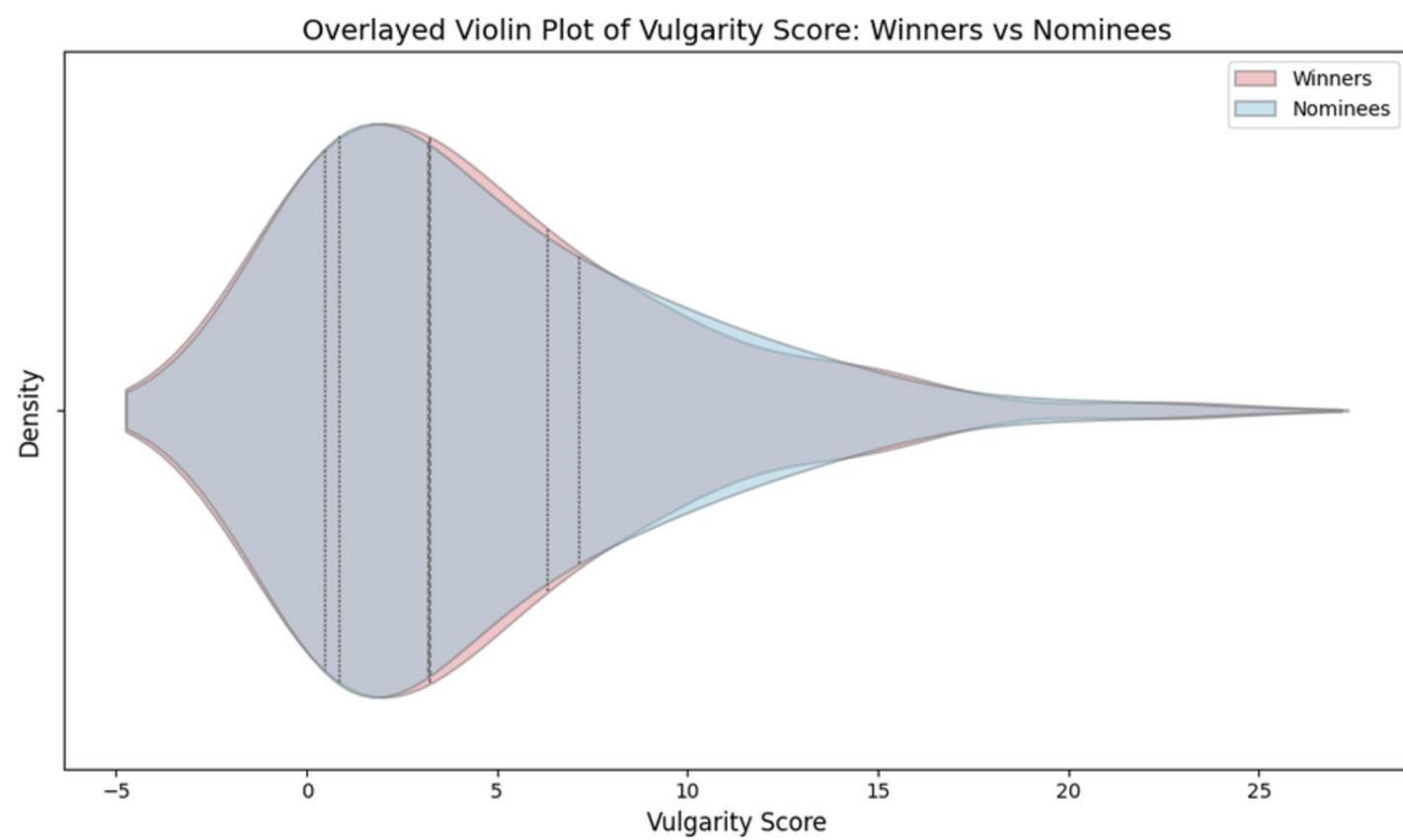
Lyrics Data- Language

Language was detected using a multilingual language classifier*



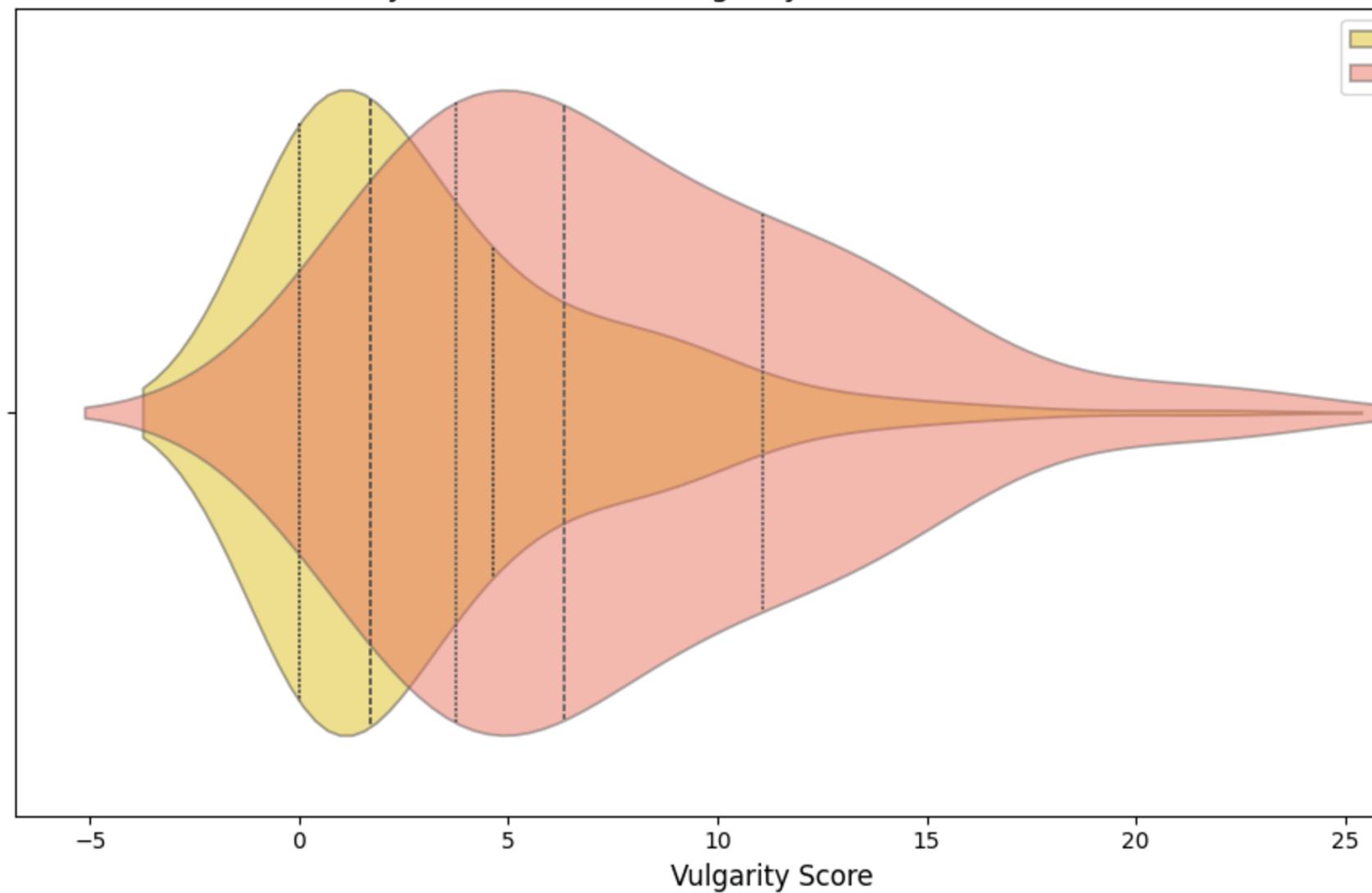
Lyrics Data- Vulgarity

Vulgarity scores were calculated as the ratio of vulgar words to the length of the text. Vulgar words were sourced from an online toxicity corpus*

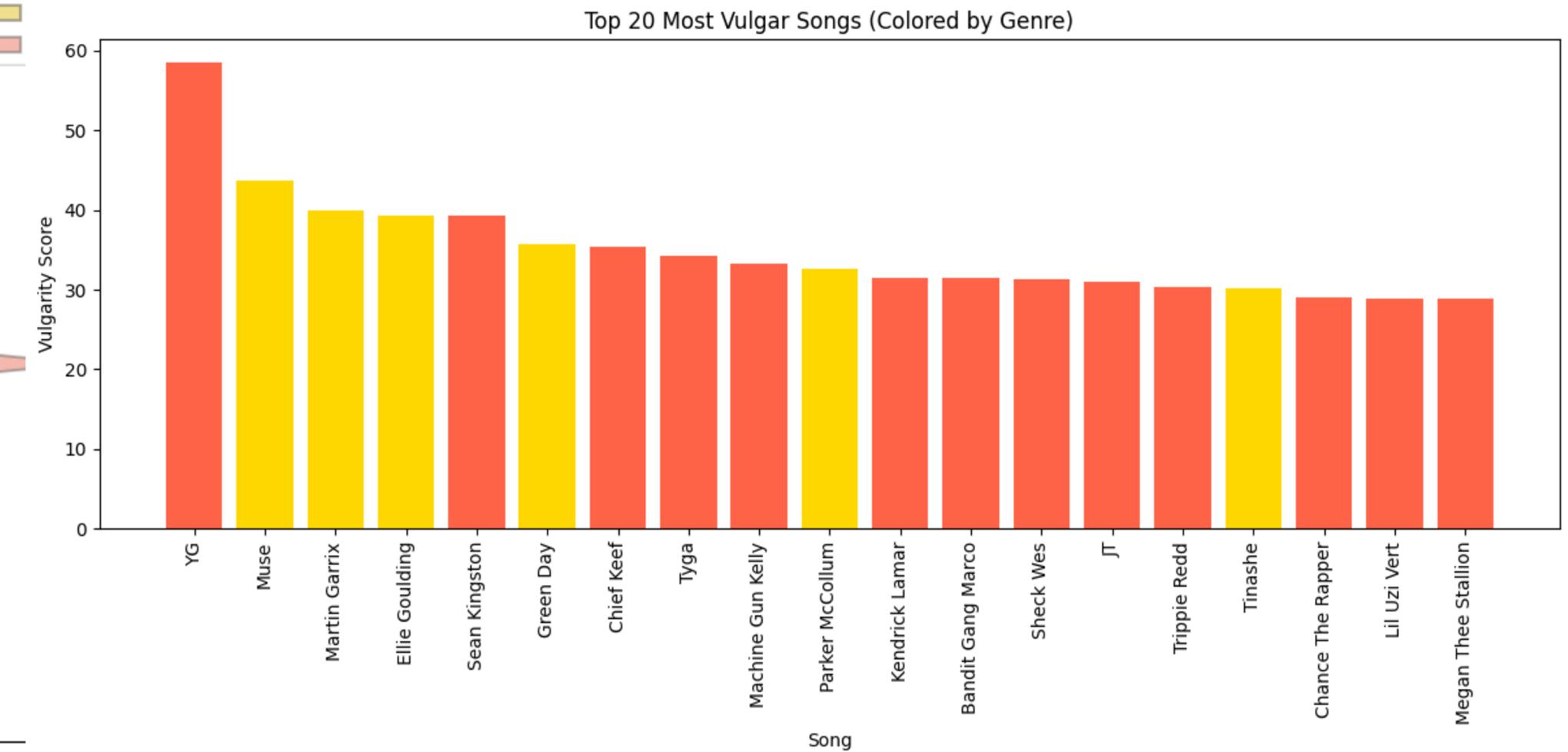


Lyrics Data- Vulgarity per category

Overlaid Violin Plot of Vulgarity Score: Winners vs Nominees



Top 20 Most Vulgar Songs (Colored by Genre)



Lyrics Data- Topic Analysis

Topics and their top vocabulary

Topic #1: (love , romance, longing)

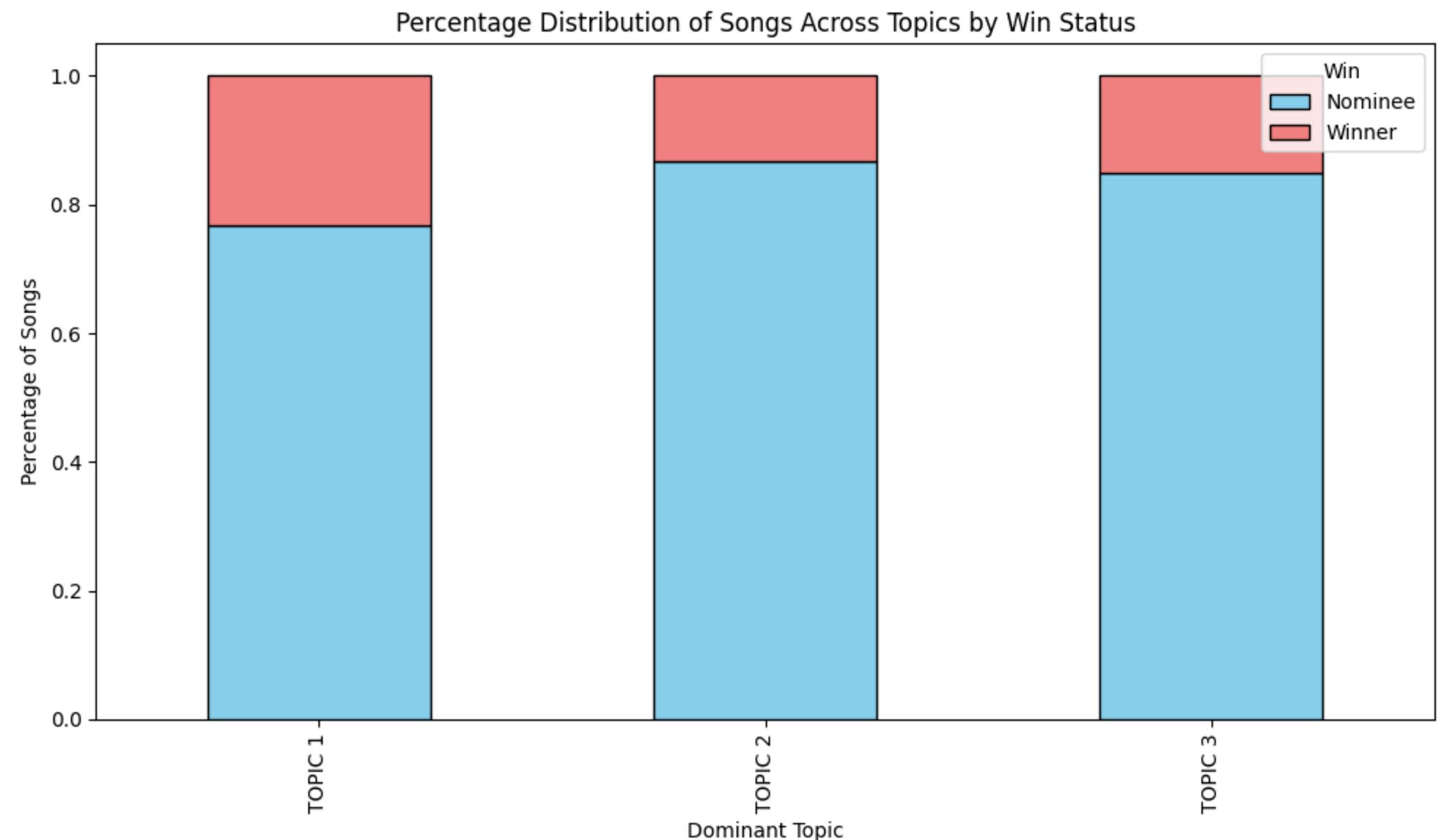
love way right see time well need think god feel

Topic #2: (party, energetic, love)

baby tell love take ever time never name work dance

Topic #3: (violence, money, cursing)

bitch fuck nigga shit put back see niggas look take



Lyrics Data- Wordclouds

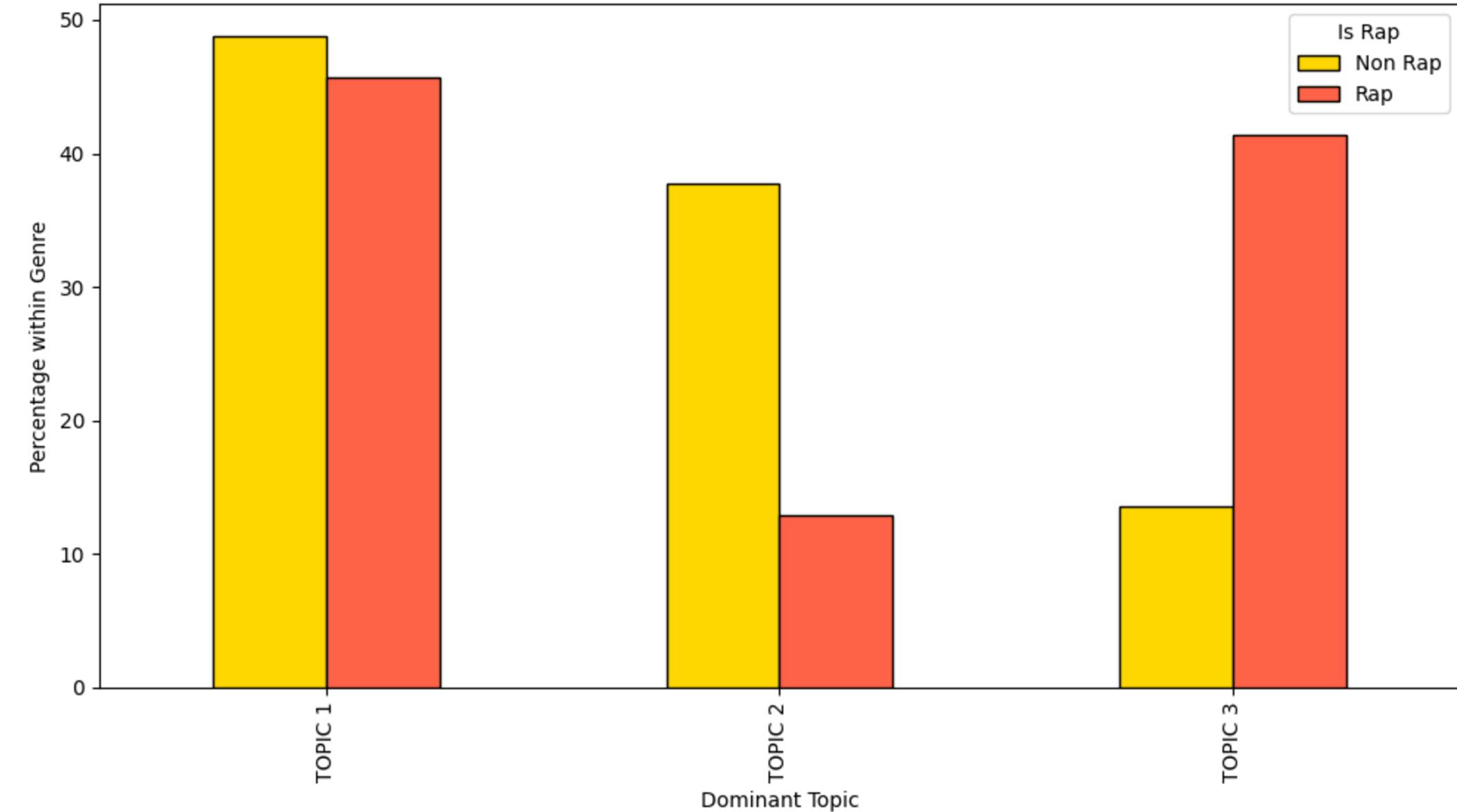
WordCloud of Rap



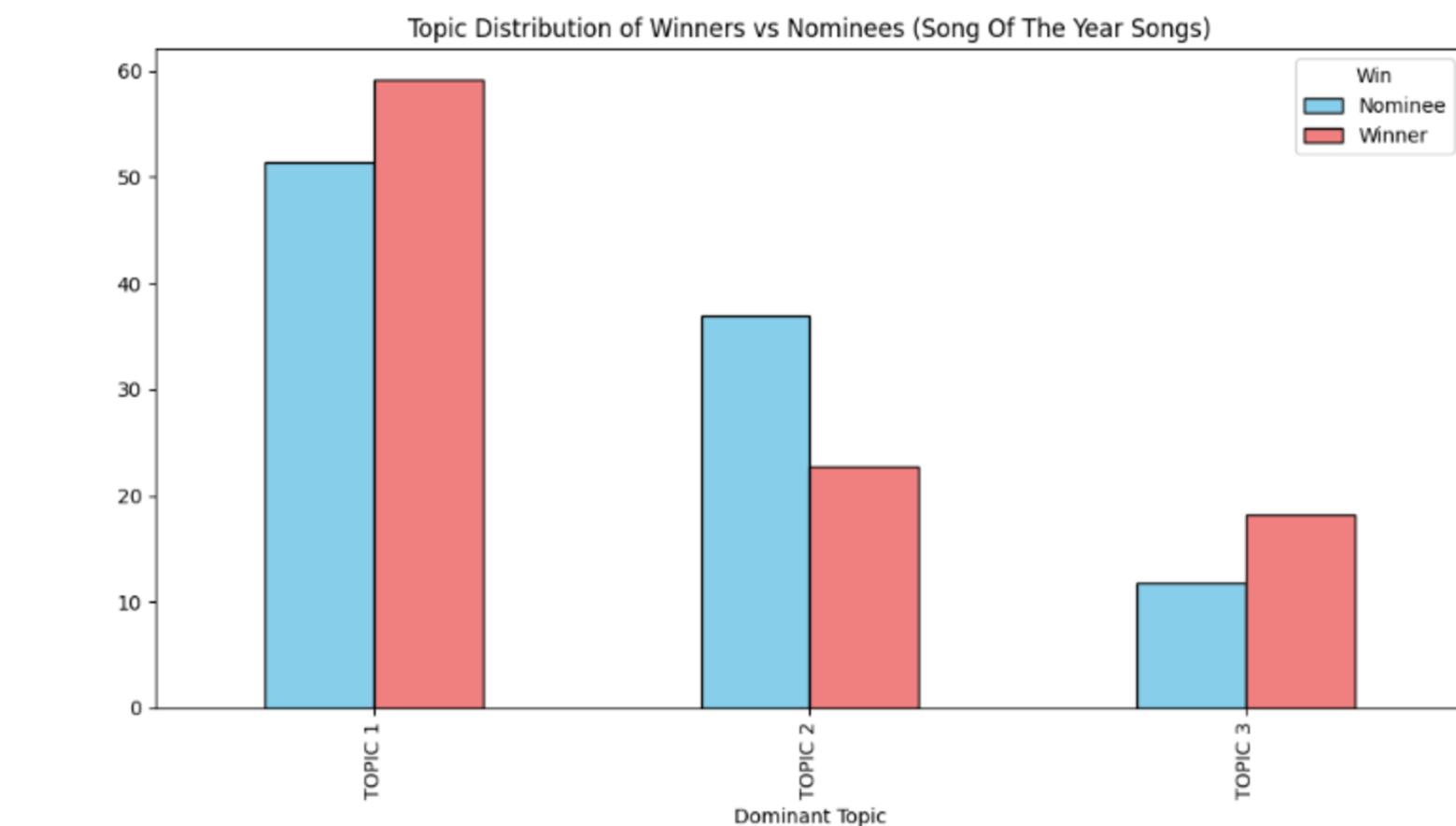
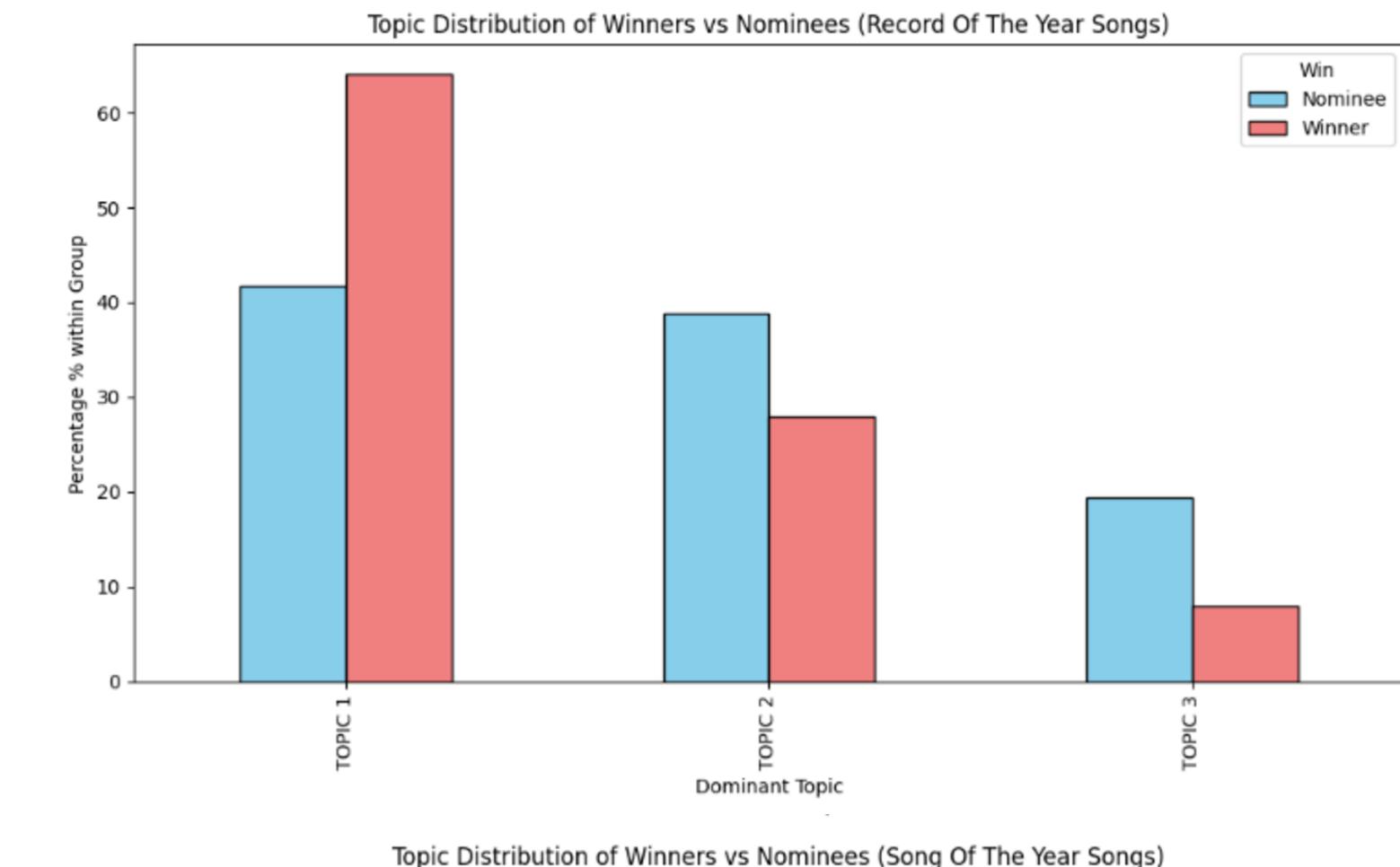
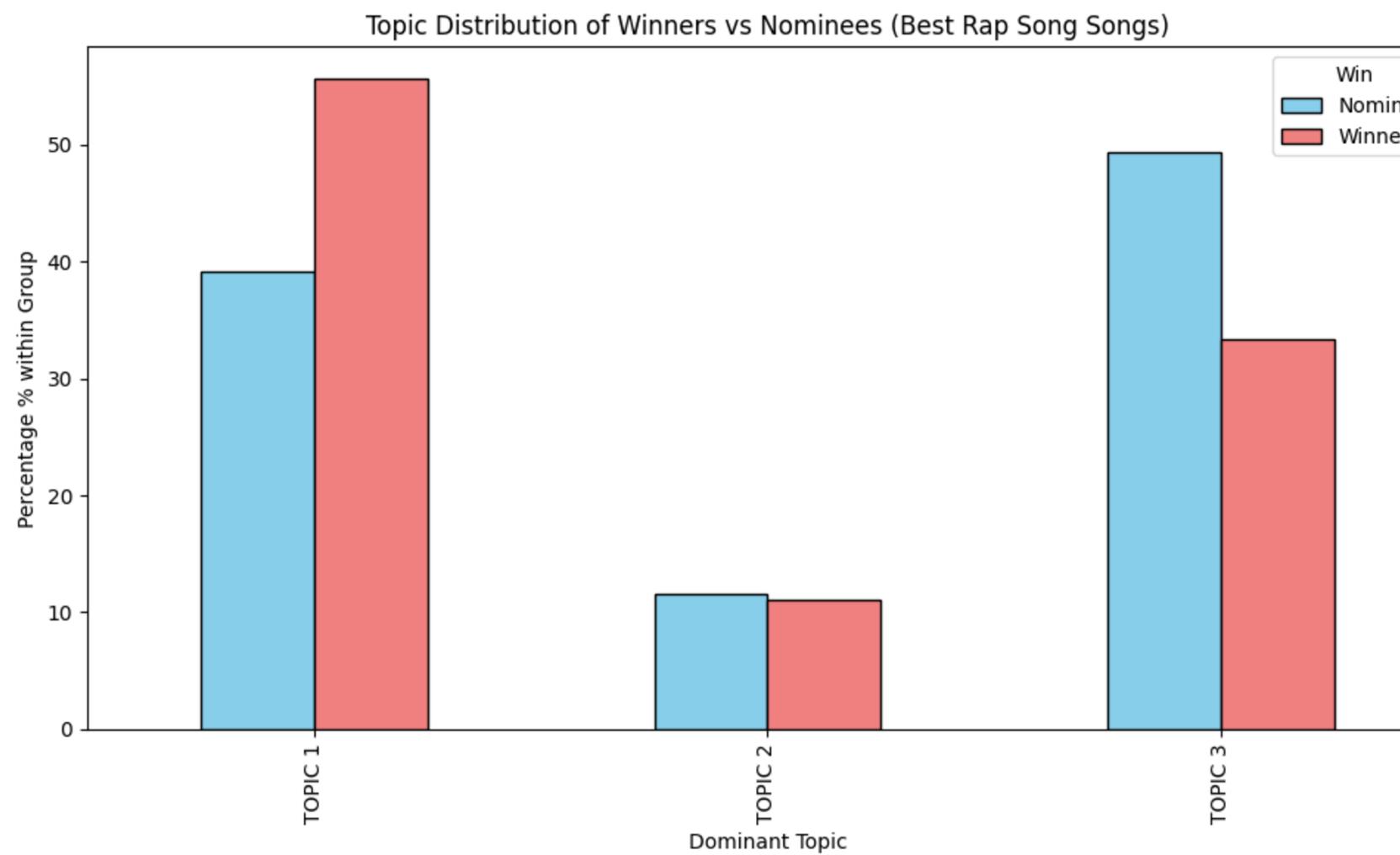
WordCloud of Pop



Topic Distribution of Rap vs Non-Rap Songs (Each Genre = 100%)



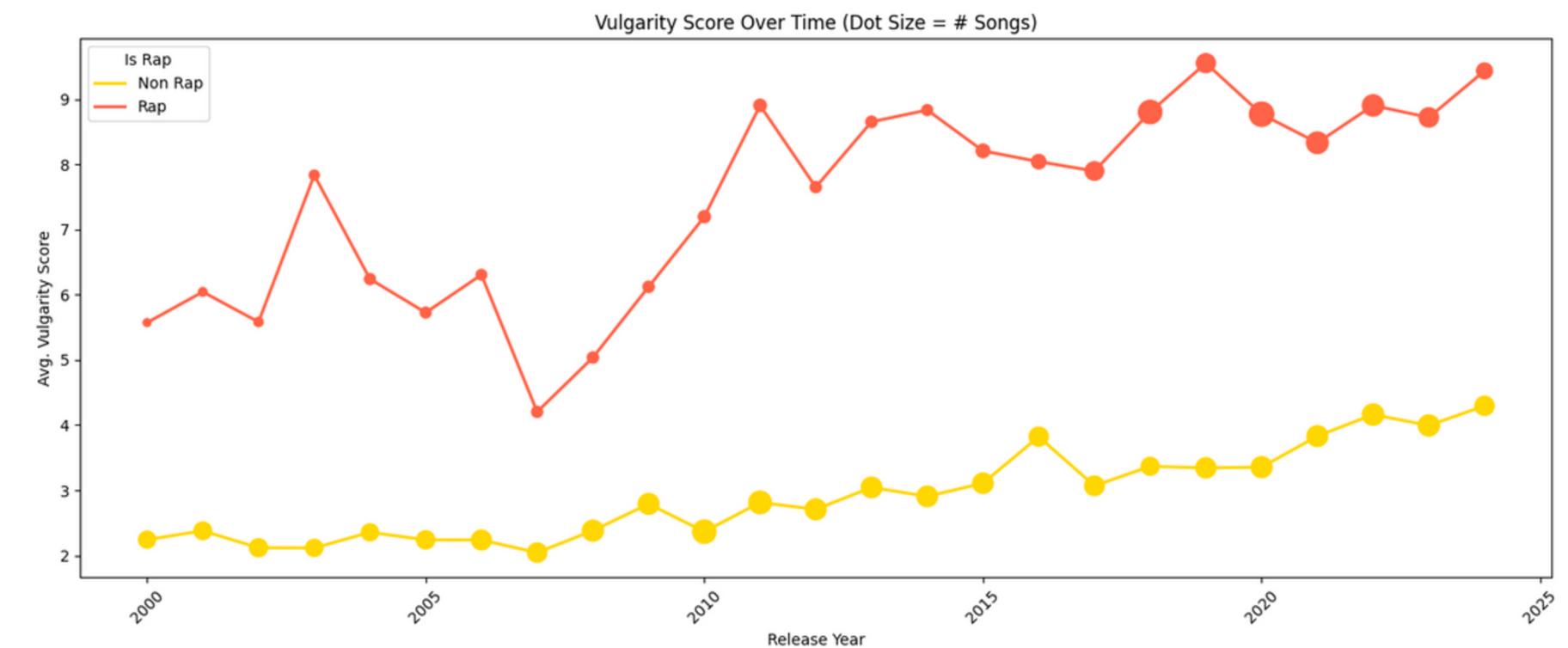
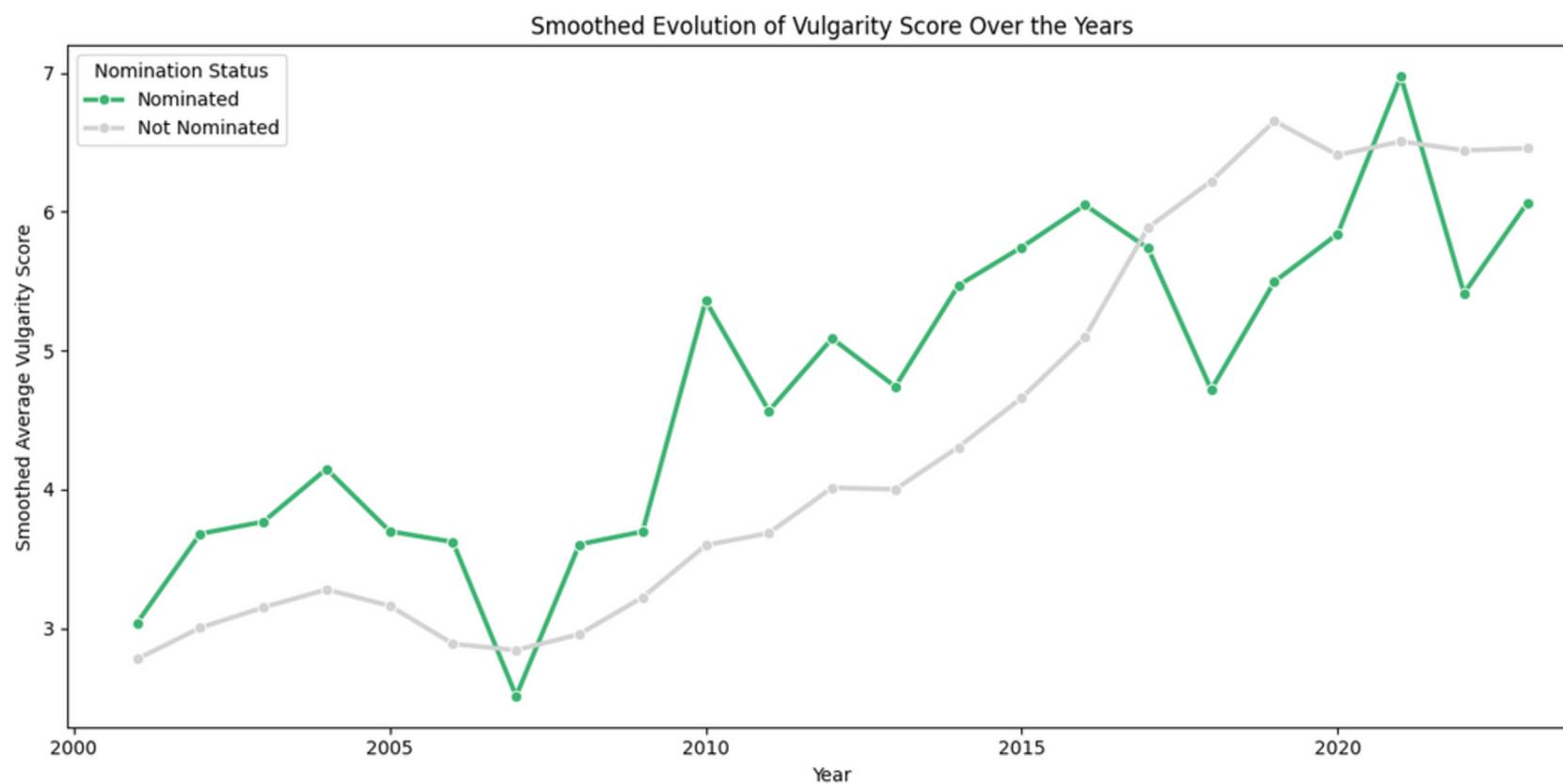
Lyrics Data- Grammy Category



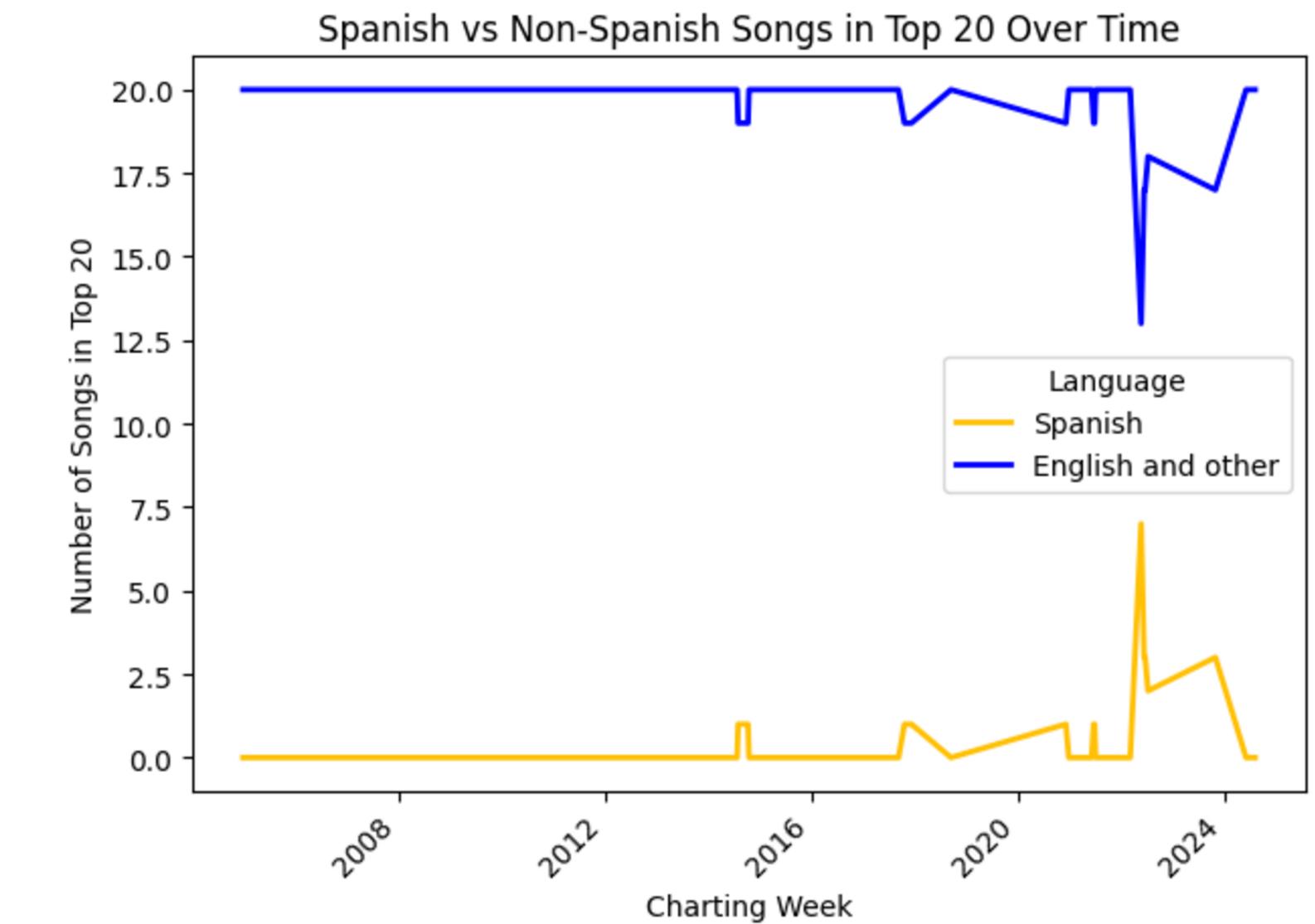
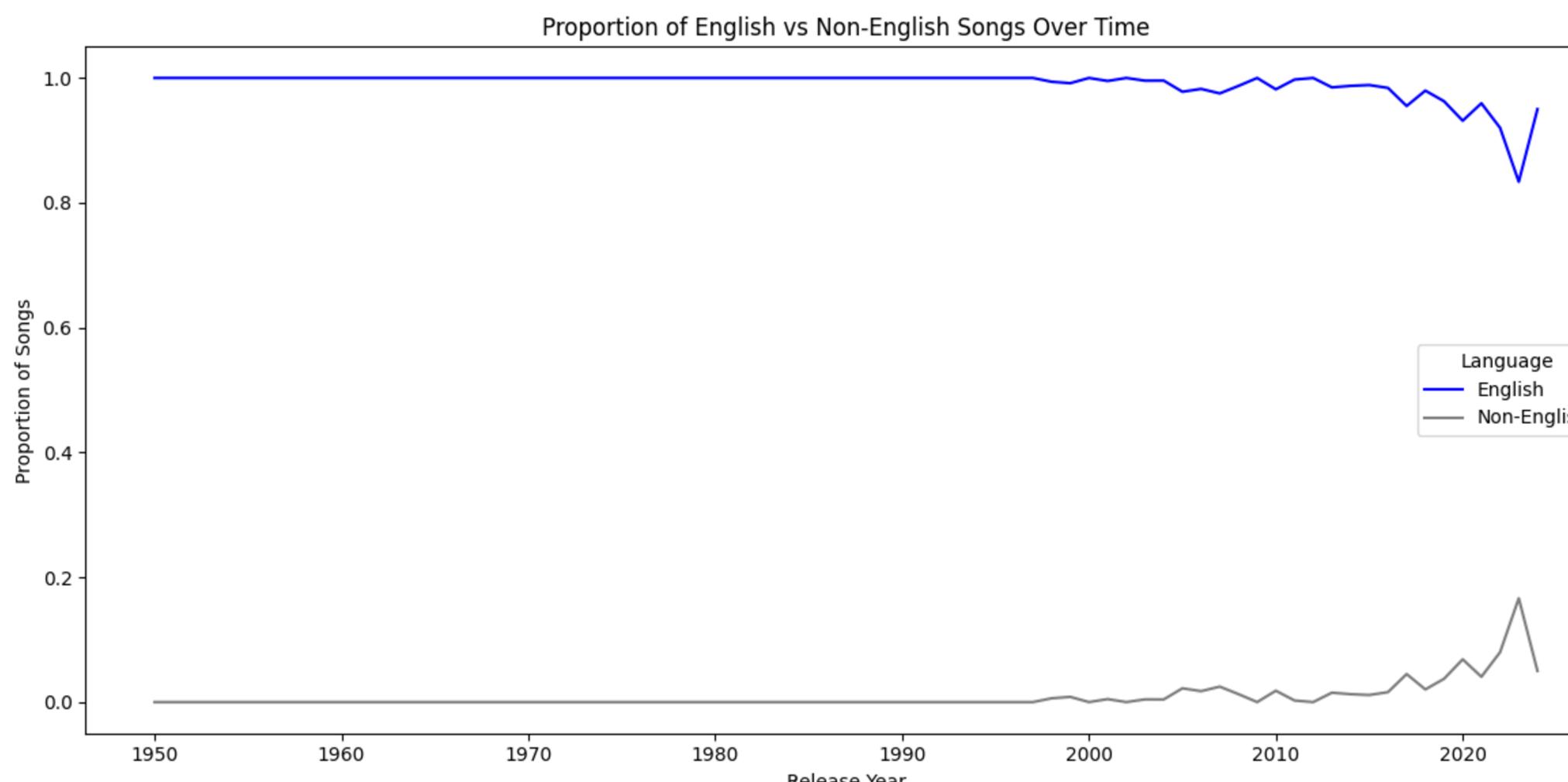
Now moving on to the trend analysis

The music industry has become **more vulgar**

for both **charting and Grammy songs**,
for both **Rap and non-Rap**.

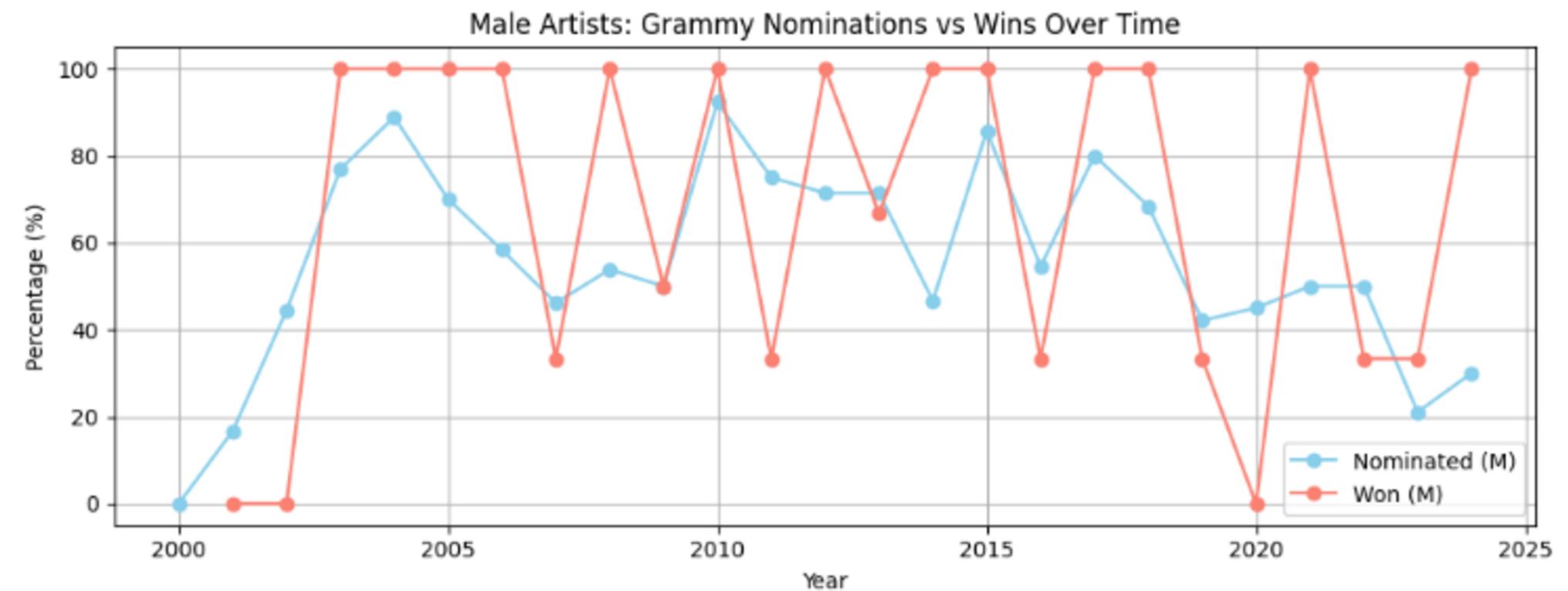
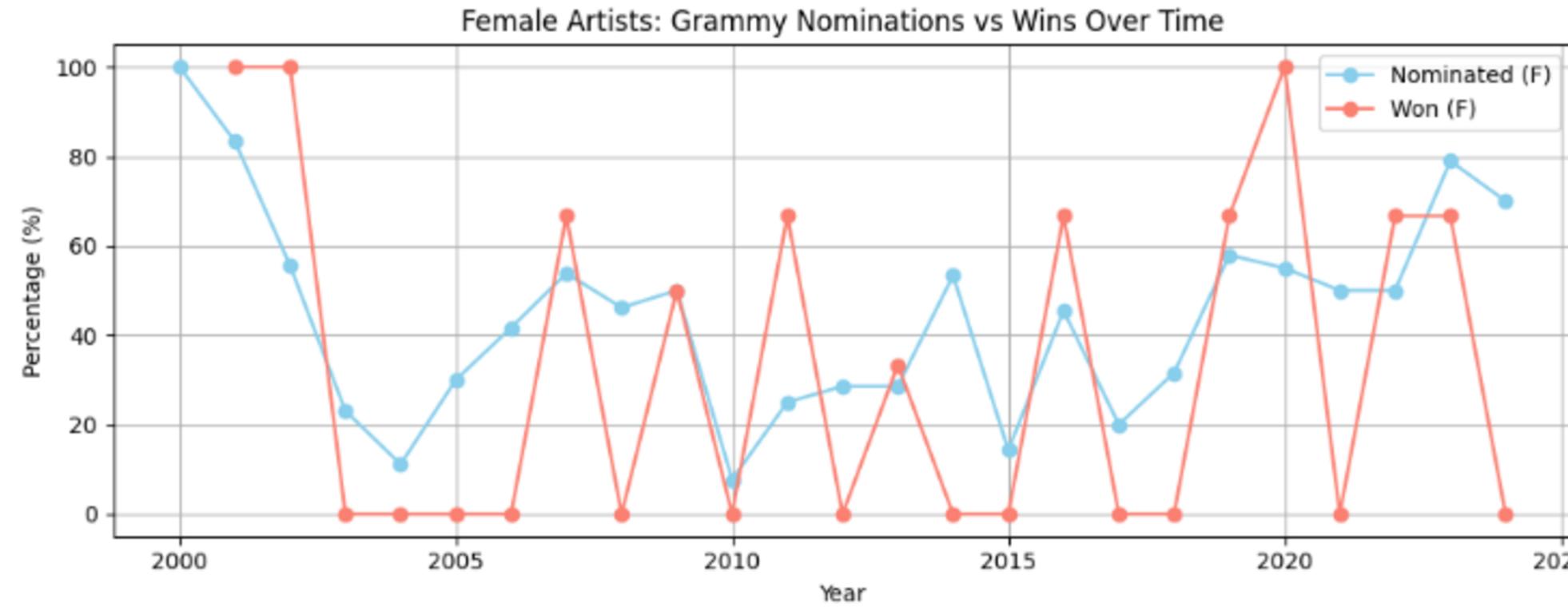


Increasing popularity of Non-English songs in billboard, but this isn't reflected in grammys trends yet



Female Grammy nominations have increased over time, (especially after 2015)

but **male artists still dominate the wins** despite receiving fewer nominations in some years.

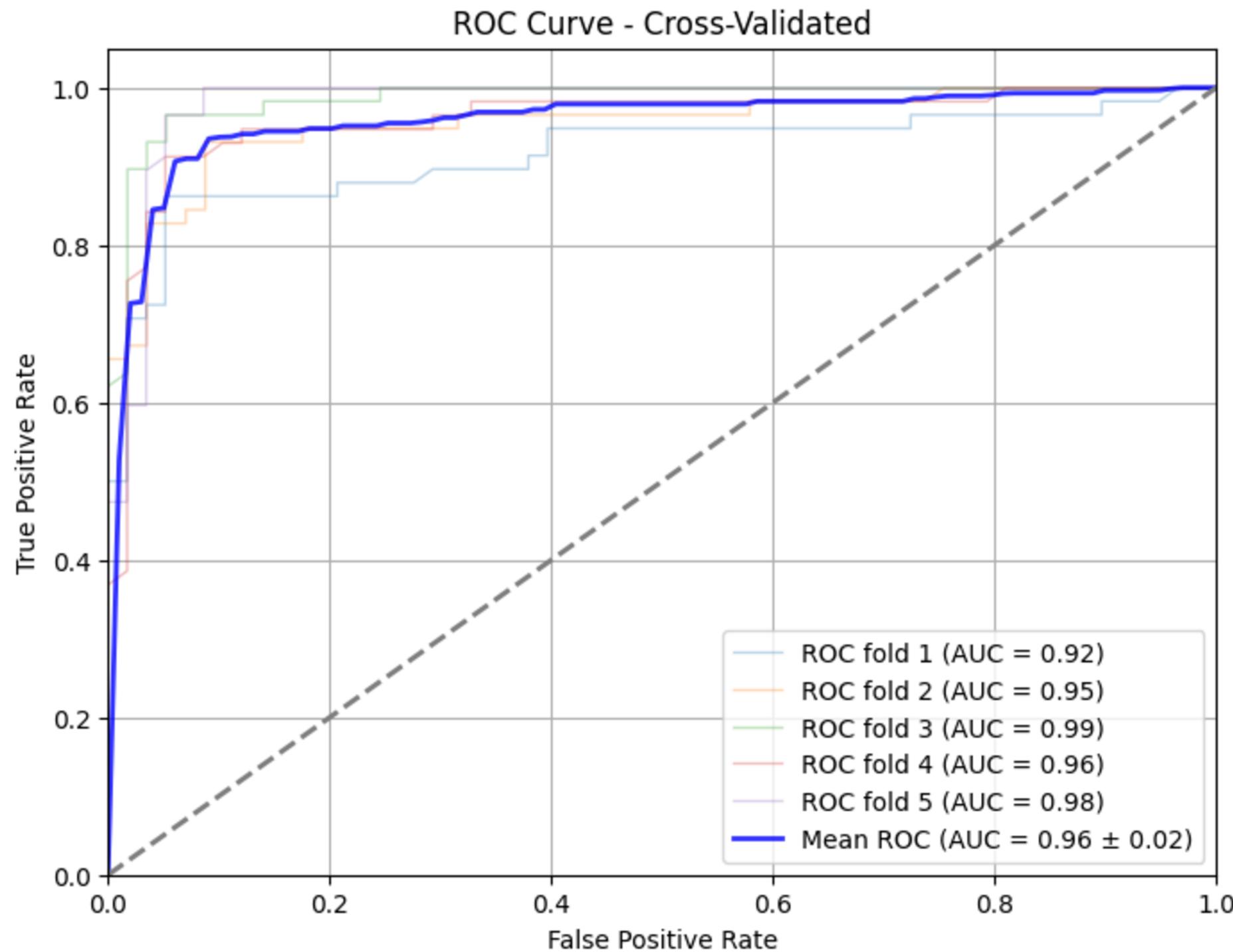


Finally, on to model prediction

Experiments

- **Models:** HistGradientBoosting, Random Forest, Linear SVM
- **Features:** Raw features, Principal Components
- **Class Imbalance Handling:** Weight Balancing, SMOTE
Oversampling
- **Small Dataset Strategy:** 5-Fold Cross-Validation

Results



F1-Score
92%

Recall
92%

Precision
92%

AUC
96%

Conclusion