ASSIGNMENT 3

INTRODUCTION

The aim of this analysis is to uncover the prevailing trends in the movie industry over the past decade, from 2013 to 2023. The overarching question driving this exploration is: "What movie trends exist in the past decade?" To address this question, various visualizations have been employed to examine patterns in movie genres, ratings, and durations.

APPROACH

Visualizations have been used extensively to analyze and interpret the data from IMDB data. The figures provide a clear representation of key metrics, allowing for easy identification of trends and patterns. The analysis begins with an overview of the most popular genres in the 2013-2023 decade, as depicted in Figure 1. Subsequent visualizations, such as Figure 2 and Figure 3, delve into the distribution of movie ratings and average movie durations over time, respectively. Additional insights are gained through Figure 4, which illustrates the distribution of main movie genres over the years.

Further exploration is conducted through density plots, focusing on specific genres such as Drama, Music, Biography, Action, Crime, Comedy, Fantasy, Animation, History, Horror, Thriller, Adventure, Musical, Mystery, Sport, Talk shows, Family, Game-Show, Reality TV shows, Sci-Fi, News, Romance, War, and Western. These density plots provide detailed insights into the fluctuation of ratings for each genre over the years, highlighting peaks, declines, and shifts in audience preferences.
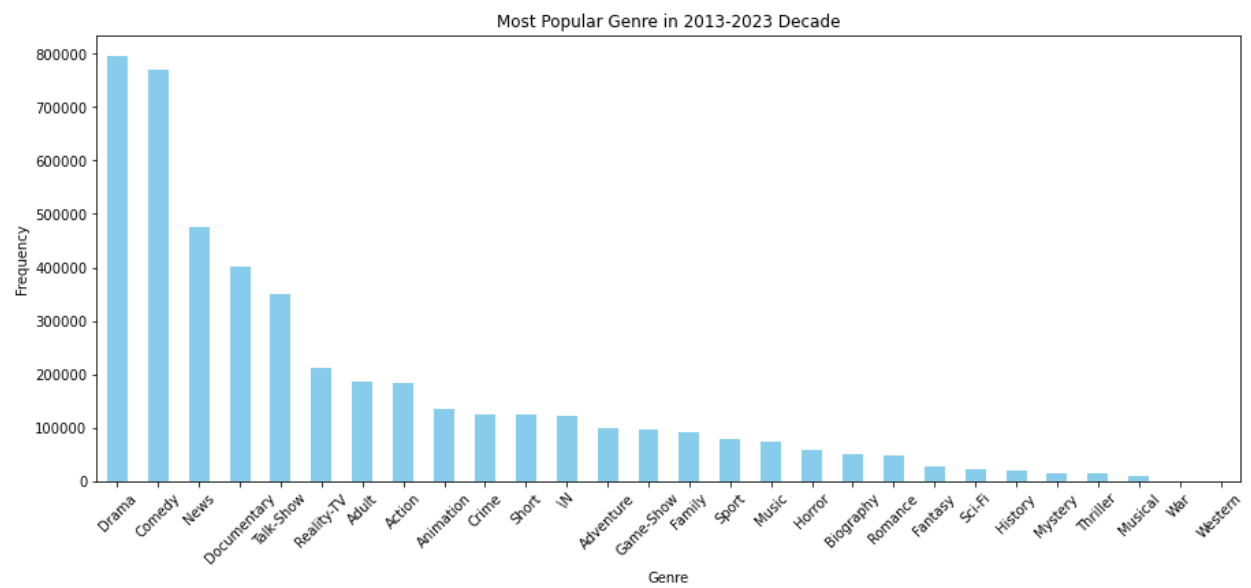

Figure 1: Most Popular Genre in 2013-2023 Decade

Most Popular Genre in 2013-2023 Decade

The bar chart above illustrates the frequency distribution of movie genres released between 2013 and 2023. Each bar represents a unique genre, while the height of the bar indicates the frequency of occurrence of that genre in the dataset. The genre with the highest frequency is identified as the most popular genre in the given time period.

Based on the visualization, it is evident that Drama emerged as the dominant genre in the 2013-2023 decade, with a frequency of almost 800k occurrences. Comedy comes next in popularity, although its frequency is notably lower than Drama. The third most popular genre is Documentary, indicating an interest in factual content. Genres like War, Western, and Musical have very low frequencies, suggesting they are less popular. Action, Horror, and Crime fall in the middle range of popularity.
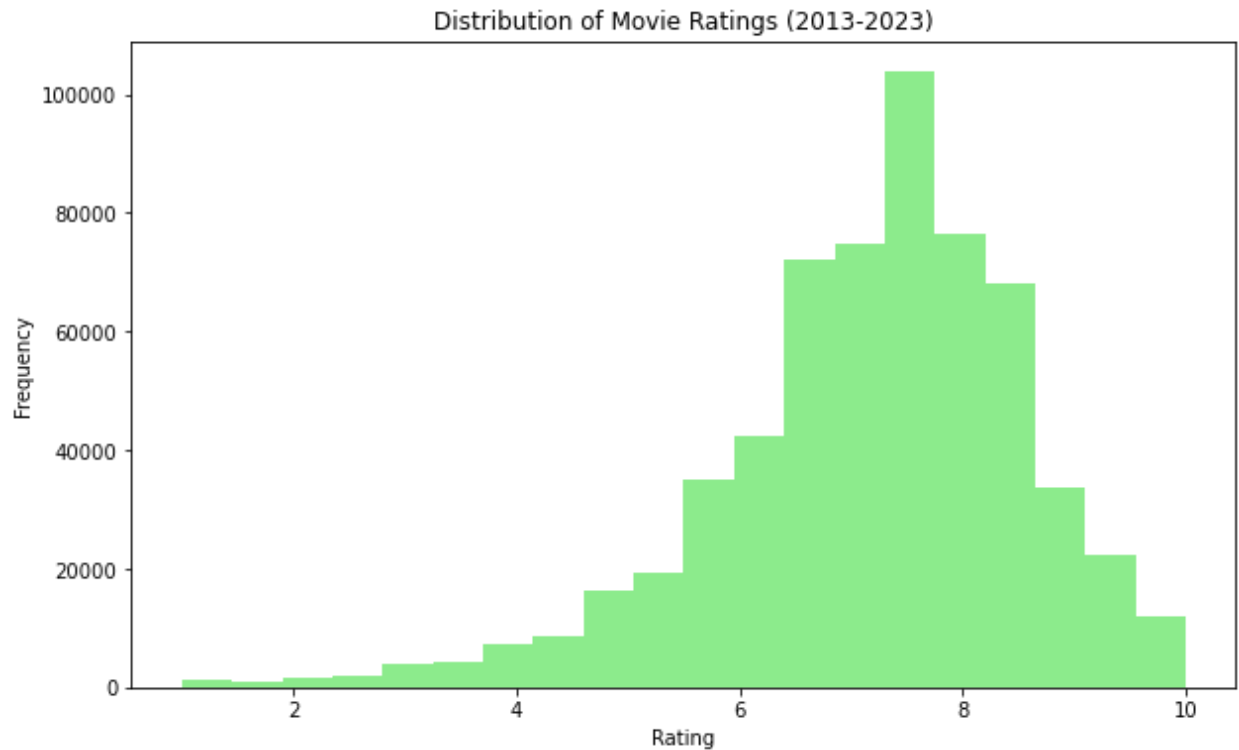

Figure 2: Distribution of Movie Ratings (2013-2023)

The histogram above displays the distribution of movie ratings for films released between 2013 and 2023. The x-axis represents the movie ratings, ranging from 0 (lowest) to 10 (highest), while the y-axis represents the frequency or count of movies falling within each rating interval.

From the visualization, we can observe several interesting patterns. The most common movie ratings fall within the range of 6 to 8, with a sharp peak occurring around a rating of 7. There are relatively few movies that received extremely low ratings (0-4) or extremely high ratings (9-10). The distribution appears to be right-skewed, indicating that more movies tend to receive moderate ratings. Ratings below 5 are sparse, suggesting that most movies are at least moderately well-received.

What we can infer from this distribution is that viewers generally appreciate movies with ratings around 7, which aligns with the notion that most films aim for broad appeal. The scarcity of very low and very high ratings indicates that extreme opinions are less common.
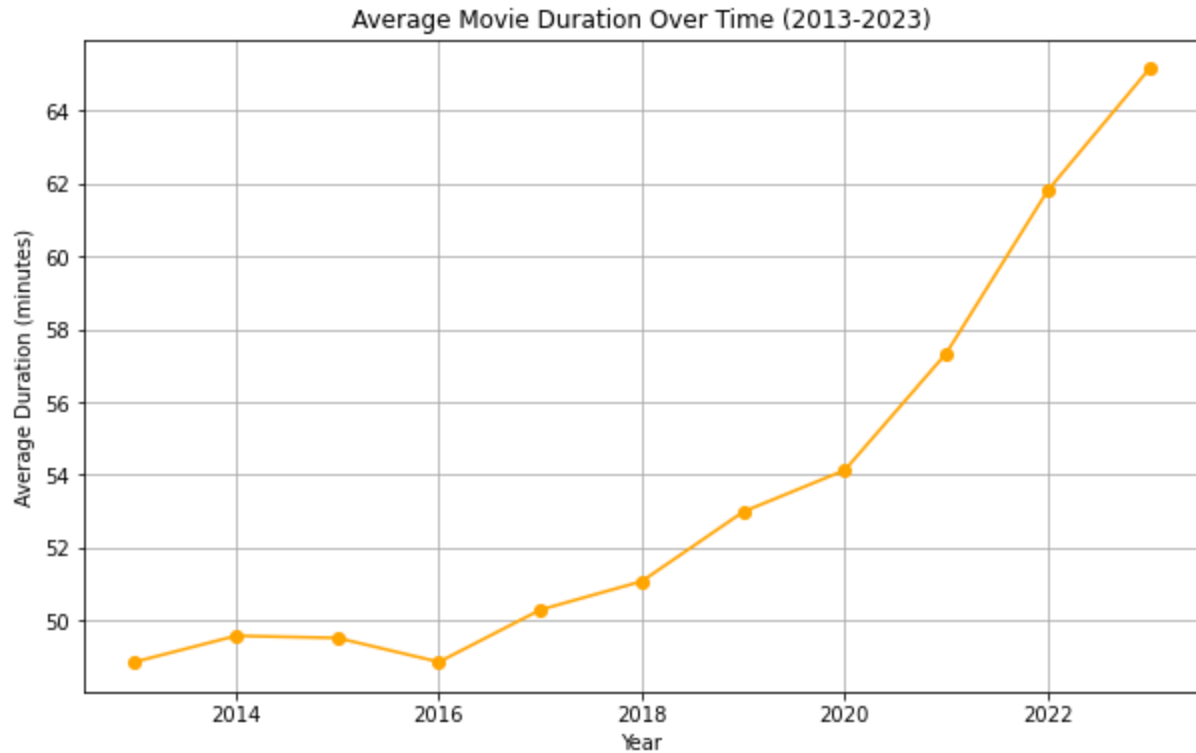
Figure 3: Average Movie Duration Over Time (2013-2023)

The line chart above illustrates the average duration of movies released between 2013 and 2023, with each data point representing the average duration of movies in a particular year. The x-axis denotes the years from 2013 to 2023, marked at two-year intervals from 2014 to 2022, while the y-axis indicates the average duration in minutes. The scale ranges from 50 to 64 minutes.

The graph shows a significant increase in the average duration of movies over time. Before 2018, the average duration remained relatively stable around 50-52 minutes. After 2018, there is a noticeable upward trend. The average duration starts increasing consistently. This trend could be influenced by various factors, such as changes in storytelling styles, audience preferences, or industry norms.

From the visualization we can see that filmmakers seem to be creating longer movies in recent years, possibly to accommodate more complex narratives or engage viewers for extended periods. Viewers' attention spans and expectations may also play a role in shaping movie durations.
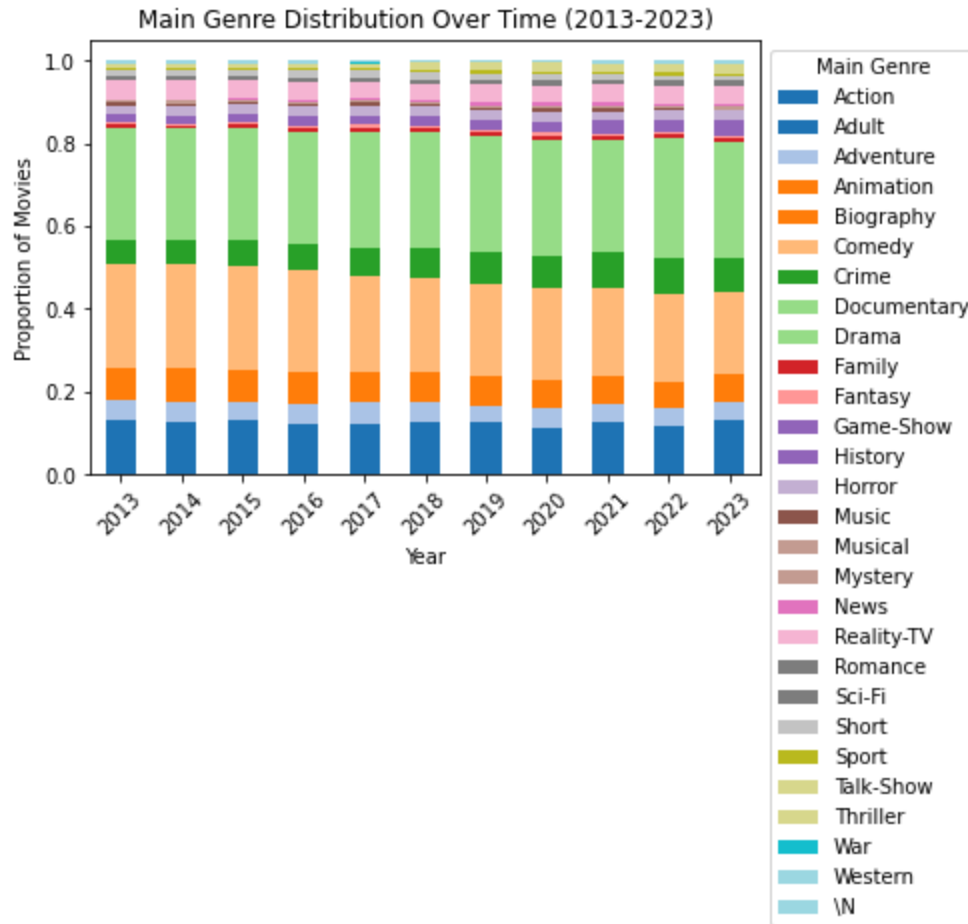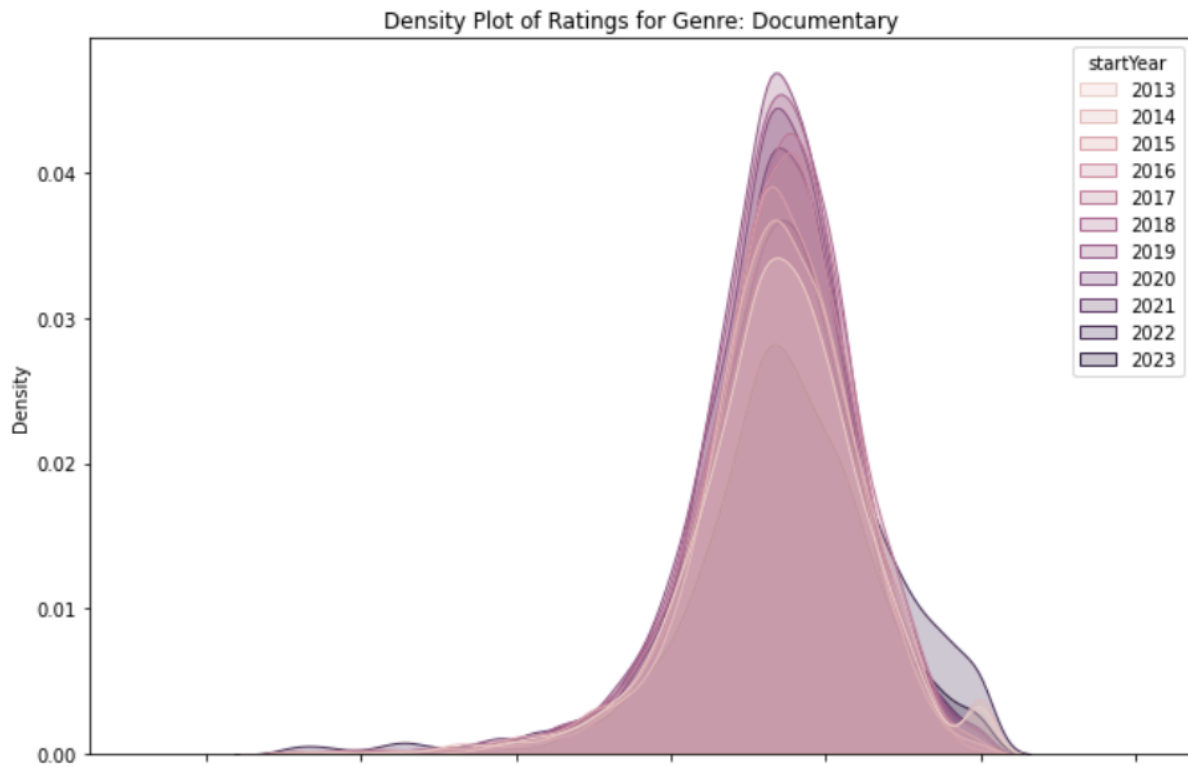
Figure 4: Main Genre Distribution Over Time (2013-2023)

The stacked bar chart above illustrates the distribution of main movie genres over the period from 2013 to 2023, offering insights into the evolving popularity of different genres during this timeframe. On the x-axis, the years are represented, spanning from 2013 to 2023, with each data point corresponding to a specific year. The y-axis indicates the proportion of movies in decimal form, ranging from 0 to 1.0, reflecting the share of each genre within the total movie production for a given year.
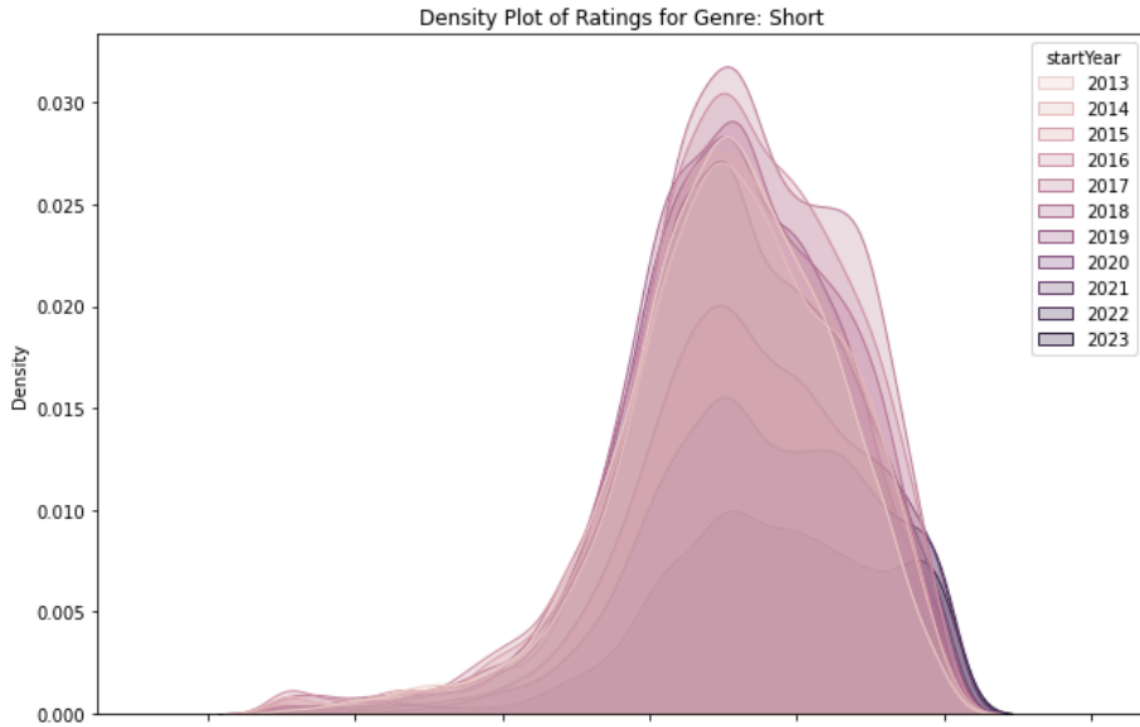
Throughout the years, Drama, Comedy, and Action emerge as the most prominent genres, consistently occupying the largest segments in each yearly bar. Despite minor fluctuations, the overall distribution remains relatively stable over time. Genres such as Crime and Adventure maintain a small but steady presence, while there is a noticeable uptick in the proportion of Animation and Adventure movies after 2018. Other genres, including Biography, Family, Fantasy, Horror, Music/Musical, Mystery, Romance, Sci-Fi, and Thriller, appear intermittently but do not dominate the landscape.
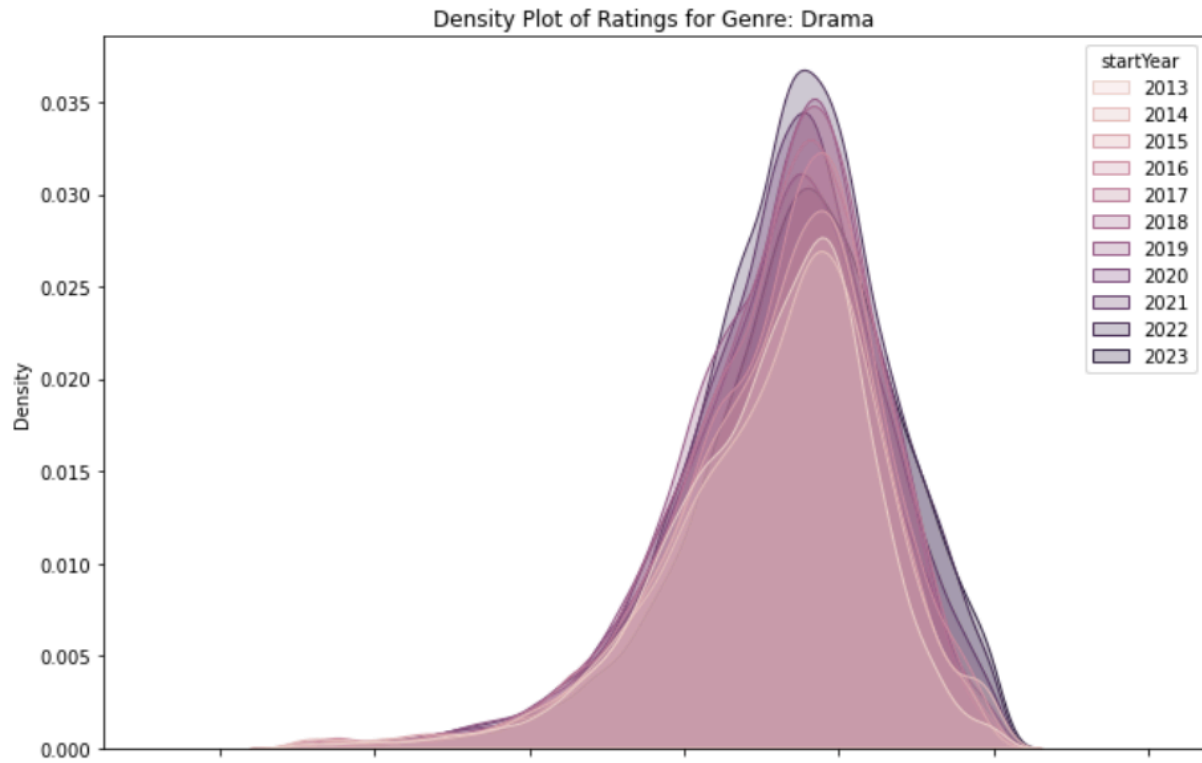
Density Plots
The below visualizations present density plots depicting the distribution of movie ratings for various genres from 2013 to 2023. Each subplot corresponds to a unique genre, and the x-axis represents different rating values, while the y-axis indicates the density of movies corresponding to each rating value.
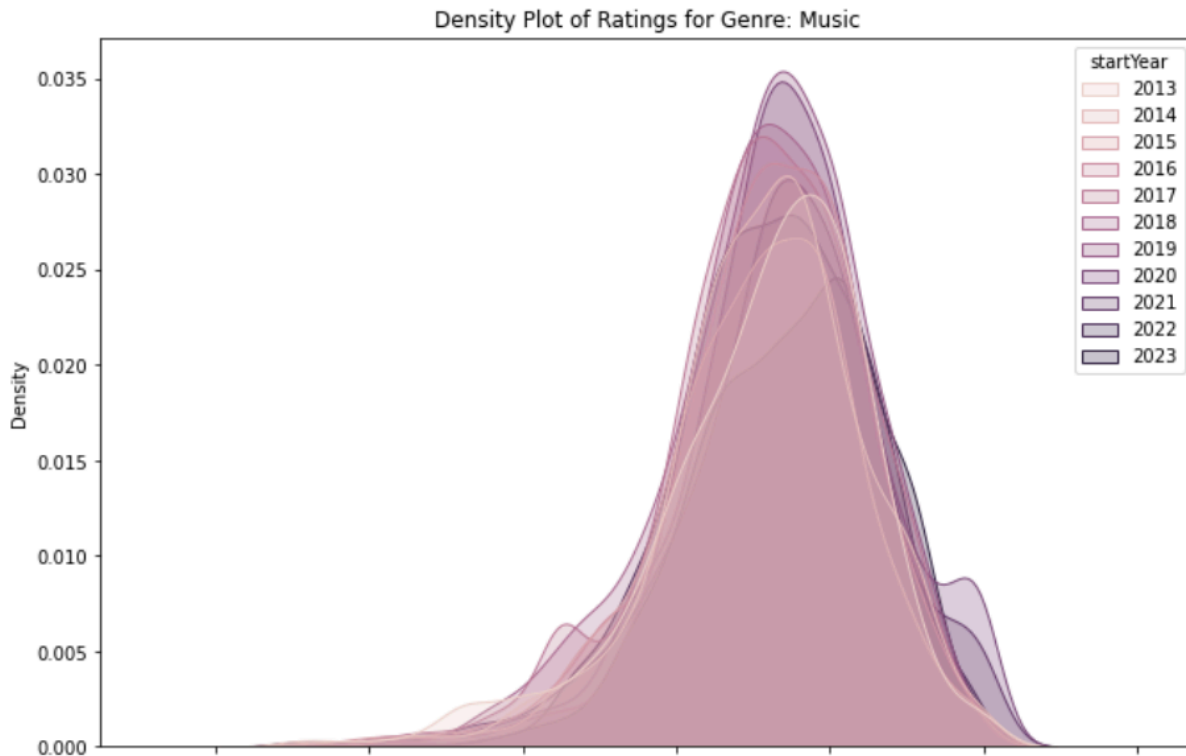

Density Plot of Ratings for Genre: Documentary

The graph depicts the fluctuation in ratings for documentaries between 2013 and 2023. Around 2017, documentaries received a lot of attention from viewers. Ratings peaked during this time, suggesting that people appreciated the content. However, there is a subsequent decline in rating density post-2017, indicating a potential shift in audience reception or documentary quality. Despite these ups and downs, the overall pattern remained quite steady.

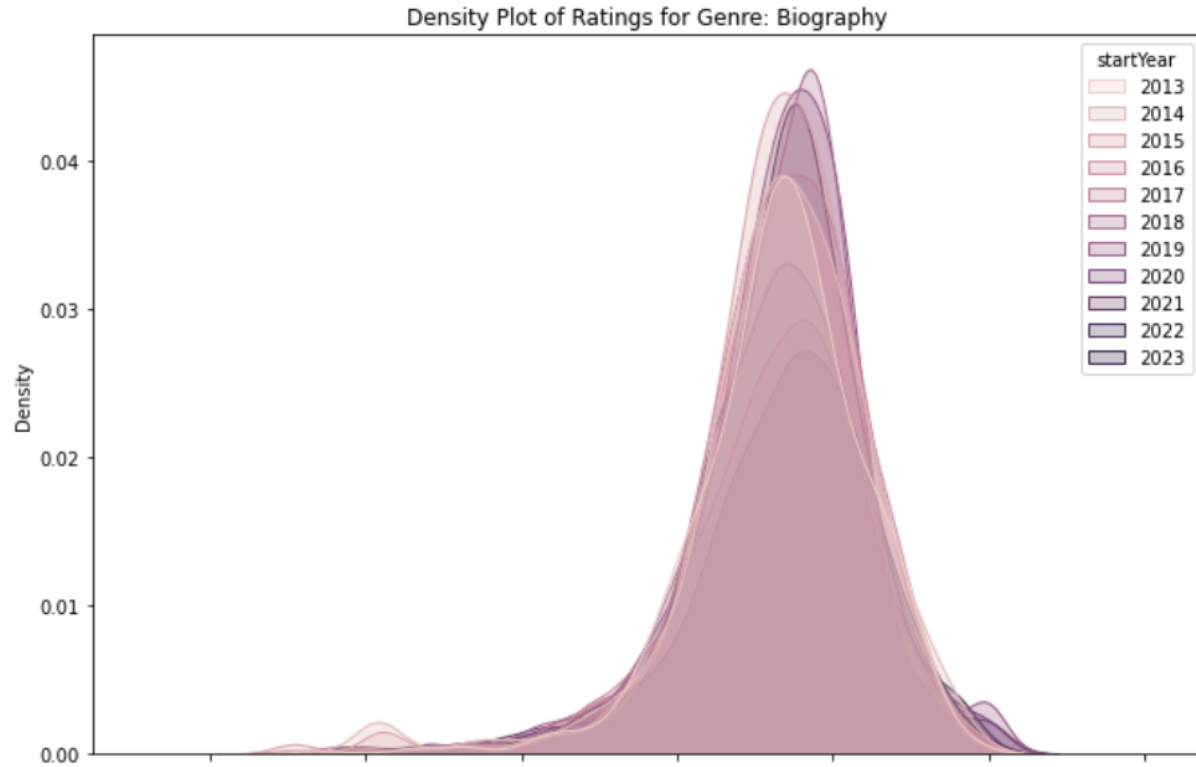Density Plot of Ratings for Genre: Short

This density plot focuses on the Short genre of movies. Shorts are typically brief films, often used for storytelling, experimentation, or conveying a concise message. Across all years (from 2013 to 2023), the density of ratings for Short films follows a similar pattern. Starting around 2013, the density of ratings gradually increases, with a peak observed around 2016. This suggests a growing appreciation for Short films during this period, possibly due to improved quality or increased audience engagement. However, a slight decline in rating density post-2016 indicates a shift in trends or saturation.
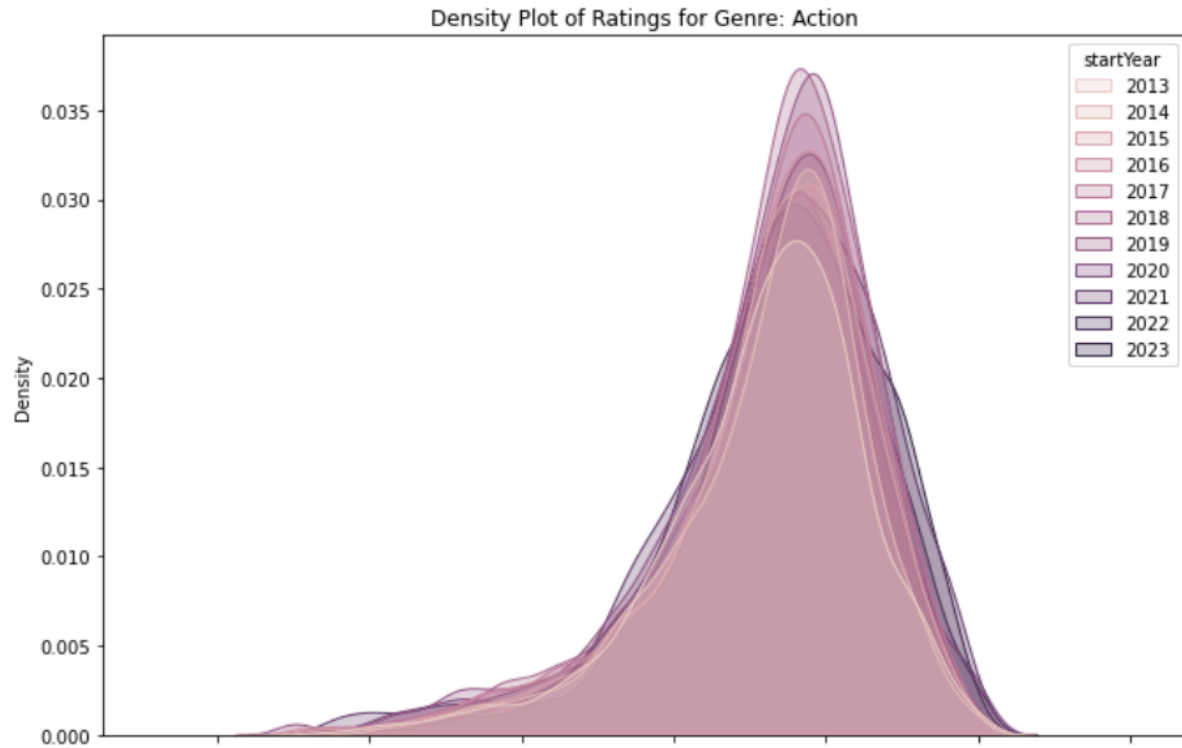
Density Plot of Ratings for Genre: Drama

This plot specifically focuses on the Drama genre of movies and shows. Across all years (from 2013 to 2023), the density of ratings for Drama follows a similar pattern. Starting around 2013, the density of ratings gradually increased. The peak density occurs around 2020, suggesting that Drama films and shows received more ratings during that year. After 2020, there's a slight decline in rating density. The increase in density indicates that more people watched and rated Drama content.
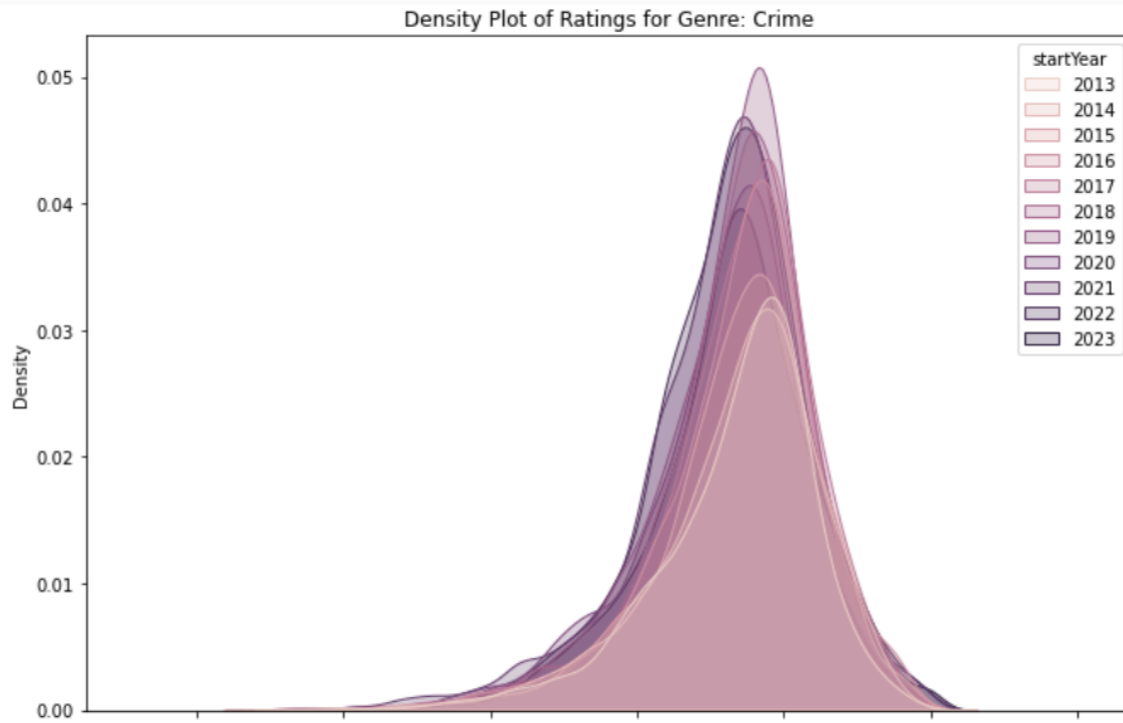
Density Plot of Ratings for Genre: Music

This plot specifically focuses on the Music genre. The peak density occurs around 2019-2020, suggesting that Music received more ratings during those years. After the peak, there's a gradual decline in rating density. The increase in density could reflect both quality music releases and shifts in listener preferences.
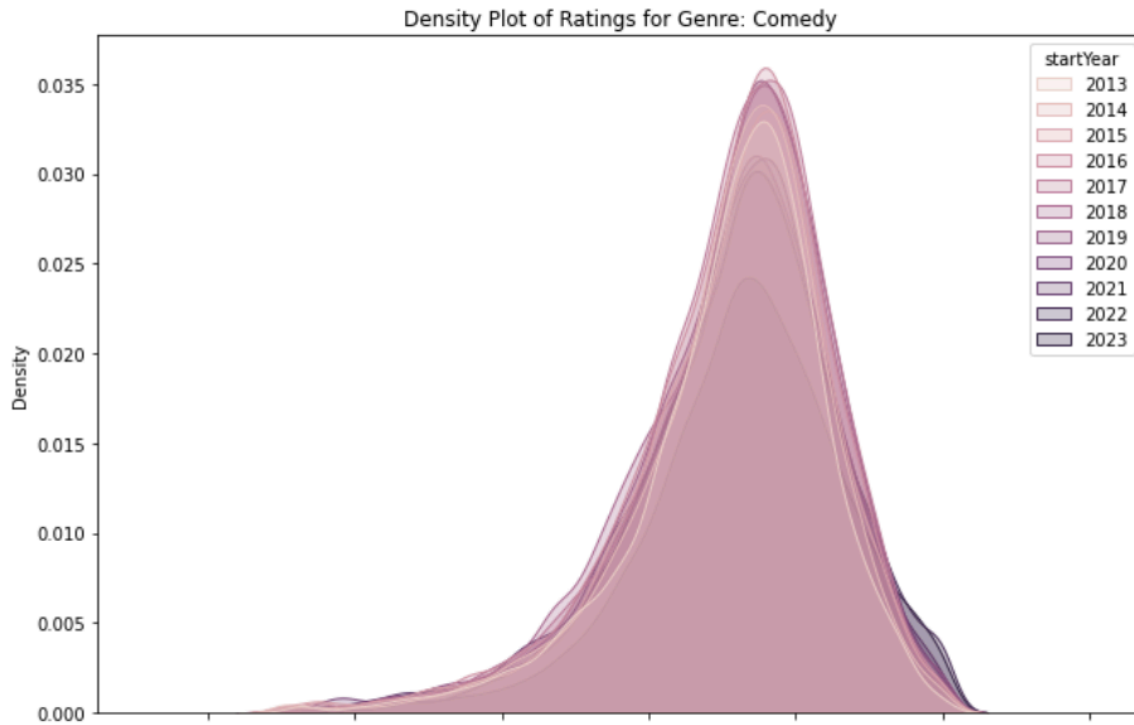
Density Plot of Ratings for Genre: Biography

This plot specifically focuses on the Biography genre of movies and shows. The peak density occurs around 2018, suggesting that Biography films and shows received more ratings during that year. After the peak, there's a gradual decline in rating density. The spread of ratings appears to be narrowing over the years, indicating less variability. Around 2018, Biography content might have hit a sweet spot. Perhaps there were compelling biopics, well-researched documentaries, or captivating life stories during that time.
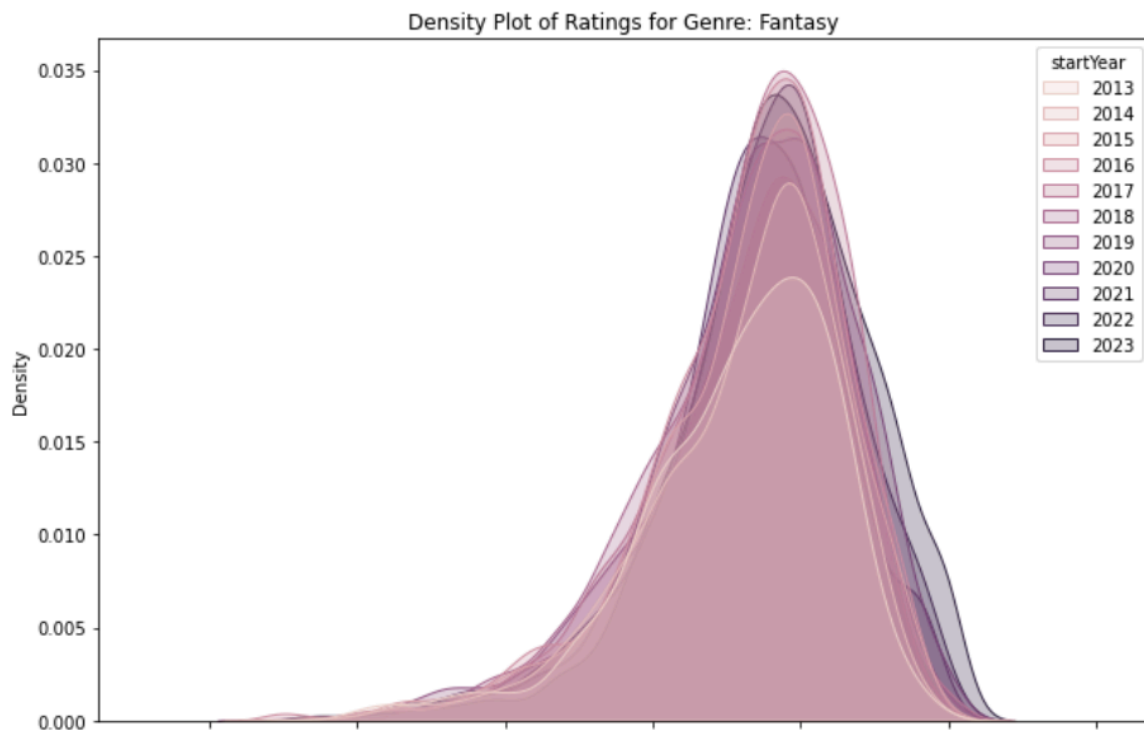
Density Plot of Ratings for Genre: Action

This plot specifically focuses on the Action genre of movies and shows. Notably, there is a peak in rating density around 2018, suggesting a surge in ratings for Action content during that time. However, a gradual decline in density afterward indicates a shift in trends or saturation. The narrowing spread of ratings over the years suggests less variability in audience reception. Overall, the rise and fall in Action ratings reflect the dynamic nature of adrenaline-pumping cinema and its evolving appeal to audiences.
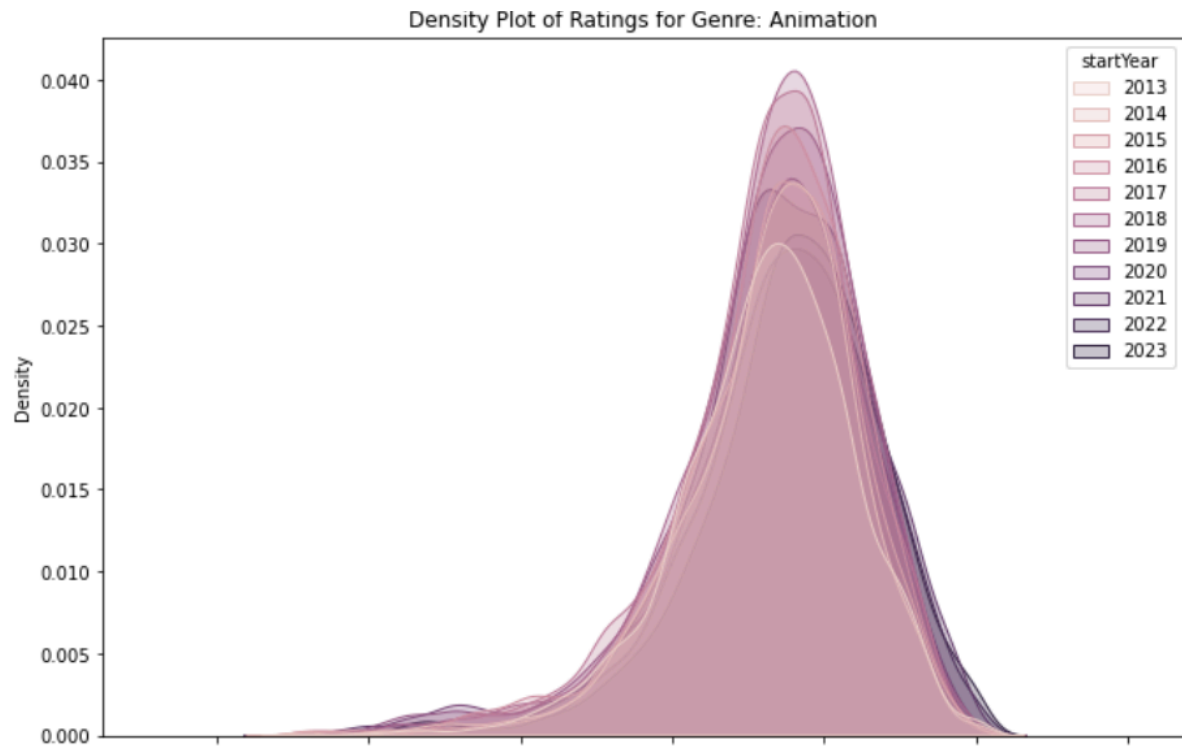
Density Plot of Ratings for Genre: Crime

This density plot offers insights into the trends surrounding Crime films and shows from 2013 to 2023. Notably, there is a peak in rating density around 2018, indicating heightened ratings for Crime content during that period. However, a gradual decline in density thereafter suggests a shift in trends or saturation. The narrowing spread of ratings over time implies less variability in audience reception.
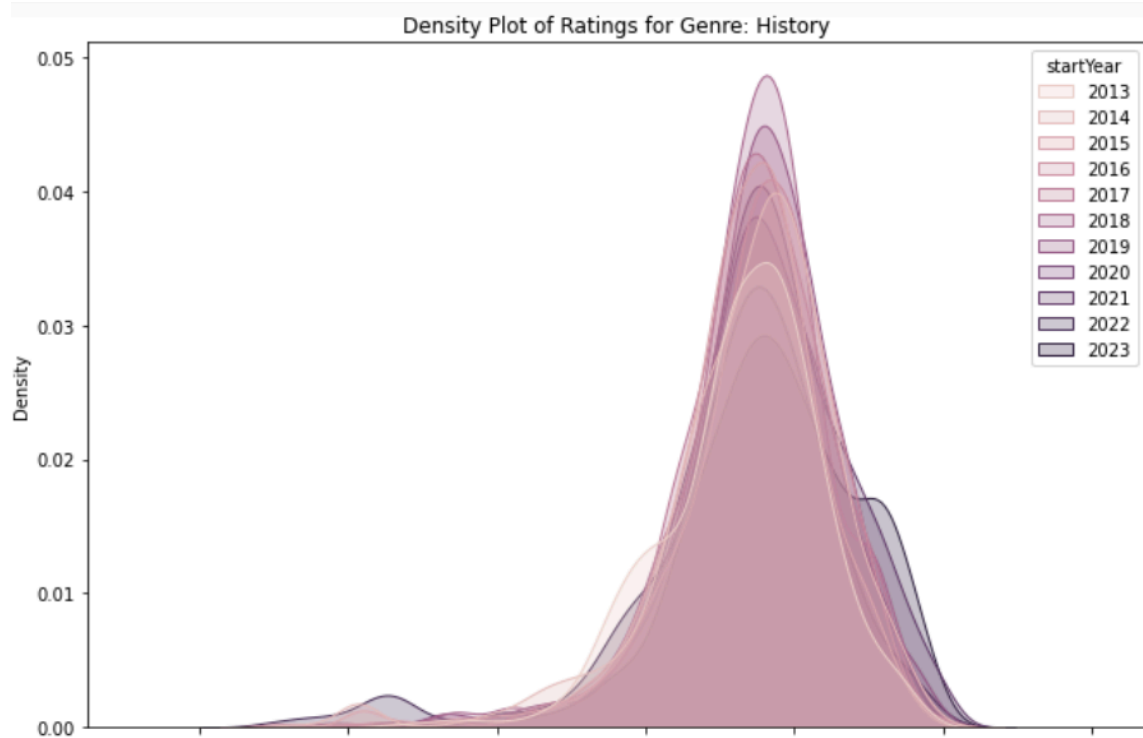
Density Plot of Ratings for Genre: Comedy

This density plot unveils trends in Comedy films and shows from 2013 to 2023.There's a peak in rating density around 2018, indicating heightened ratings for Comedy content during that period. However, a gradual decline in density afterward suggests a potential shift in trends or saturation.

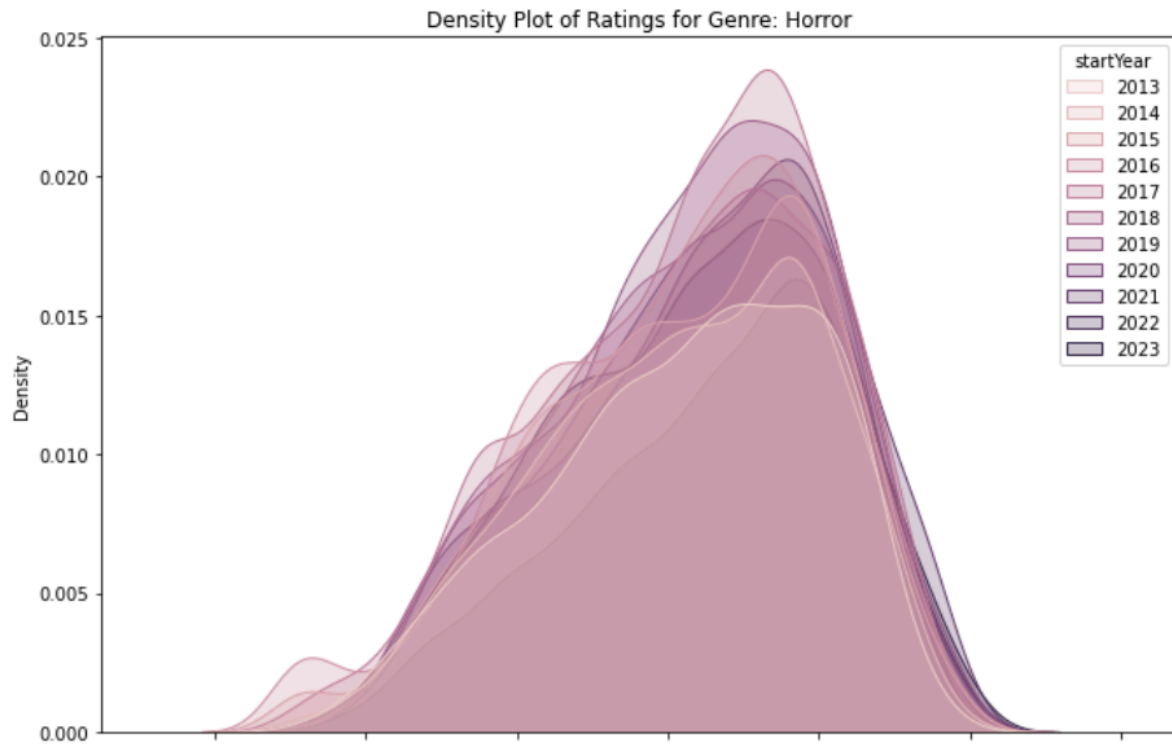Density Plot of Ratings for Genre: Fantasy

This density plot delves into the ratings trends of Fantasy movies and shows from 2013 to 2023. Notably, there's a peak in rating density around 2016, indicating heightened ratings for Fantasy content during that period.
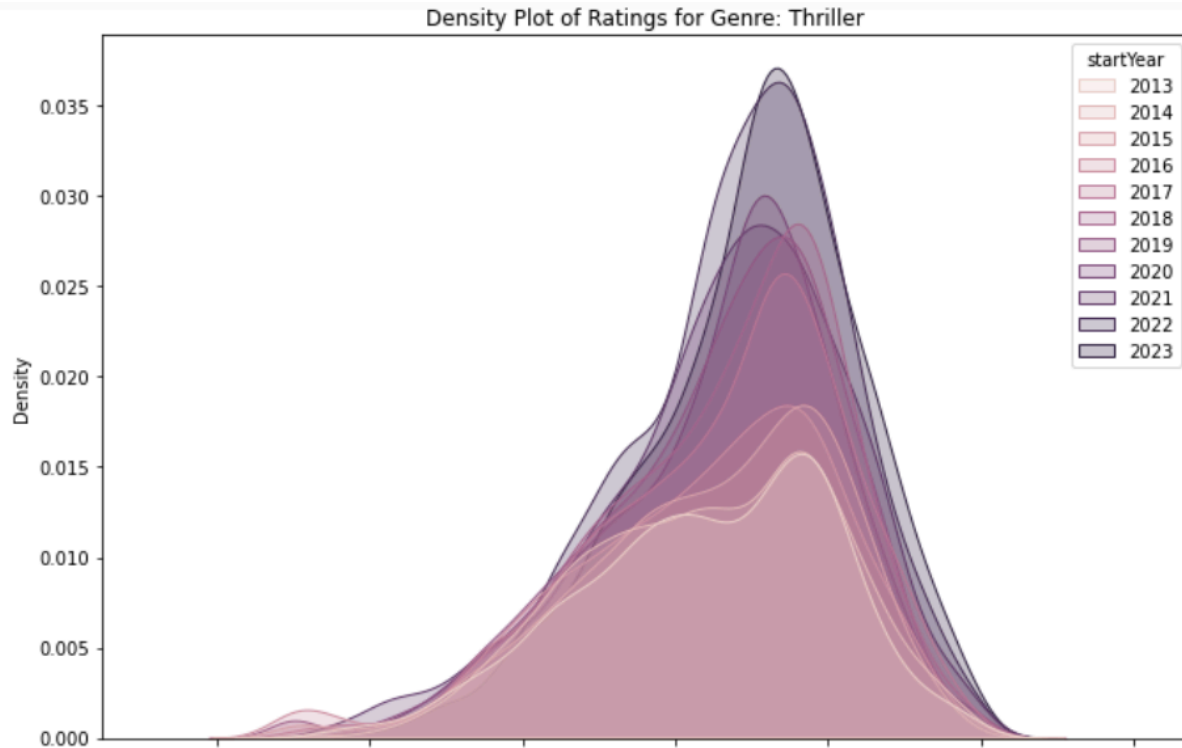
Density Plot of Ratings for Genre: Animation

This plot specifically focuses on the Animation genre of movies and shows. The peak density occurs around 2018, suggesting that Animation films and shows received more ratings during that year. The increase in density could reflect both well-crafted animations and viewer enthusiasm. After a gradual decline there is an increase in 2020, maybe a surge in animated content or renewed interest in imaginative worlds.
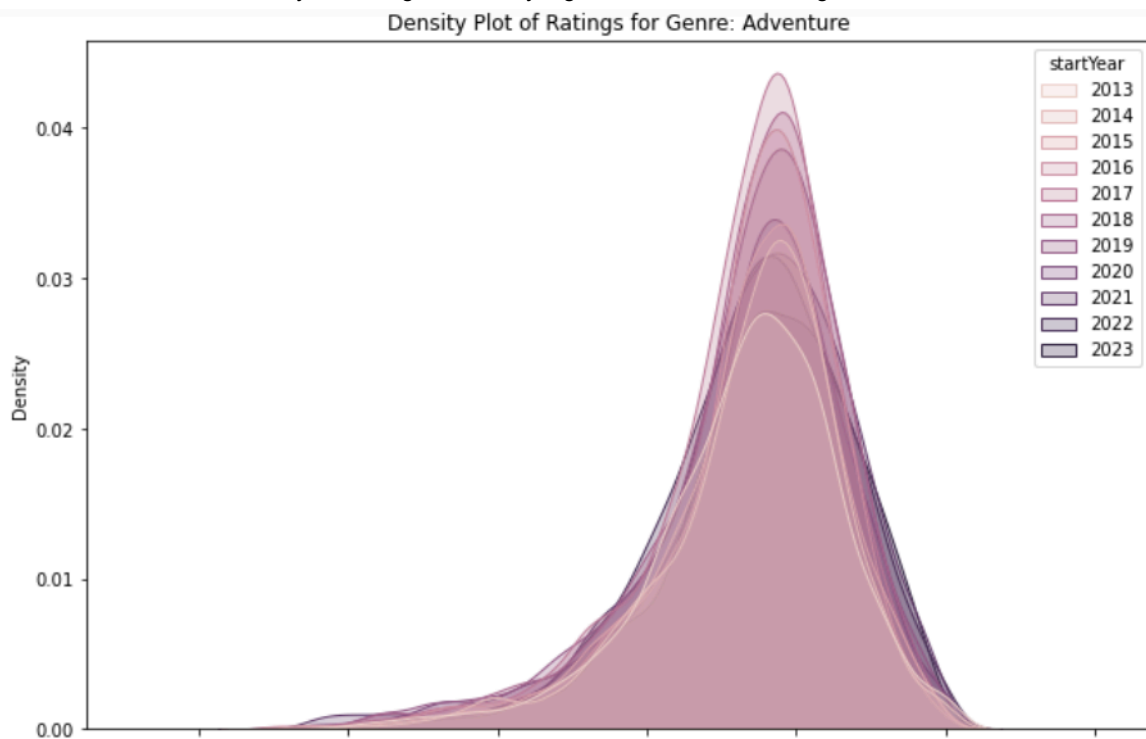
Density Plot of Ratings for Genre: History

This plot specifically focuses on the History genre of movies and shows. History content often delves into real-world events, historical figures, and significant moments from the past.The peak density occurs around 2018, suggesting that History films and shows received more ratings during that year. Around 2016, viewers might have been particularly interested in historical narratives. Perhaps there were captivating documentaries, biopics, or period dramas during that time.
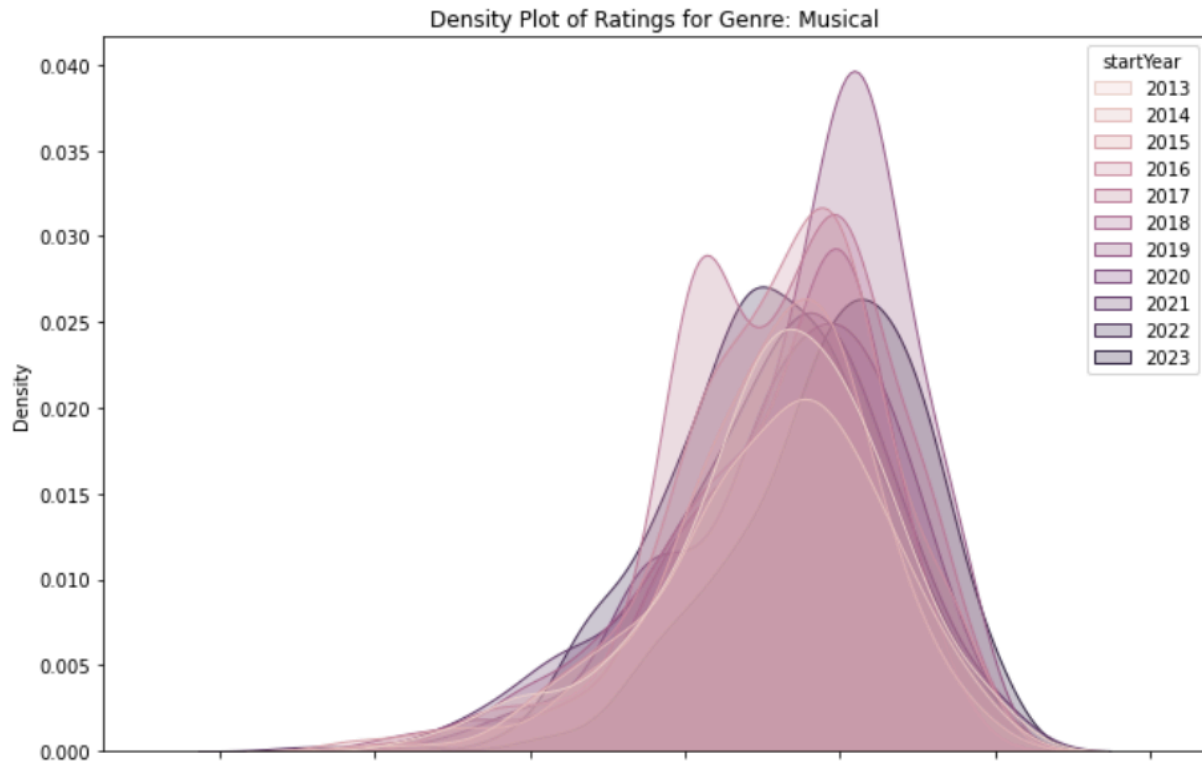
Density Plot of Ratings for Genre: Horror

This plot specifically focuses on the Horror genre of movies and shows. The ratings used to be very mixed and lower in the first couple of years and then it's slowly getting narrower. The peak density occurs around 2017, suggesting that Horror films and shows received more ratings during that year. Around 2017, Horror content might have experienced a surge. Perhaps there were spine-chilling movies, gripping TV series, or innovative horror storytelling during that time.
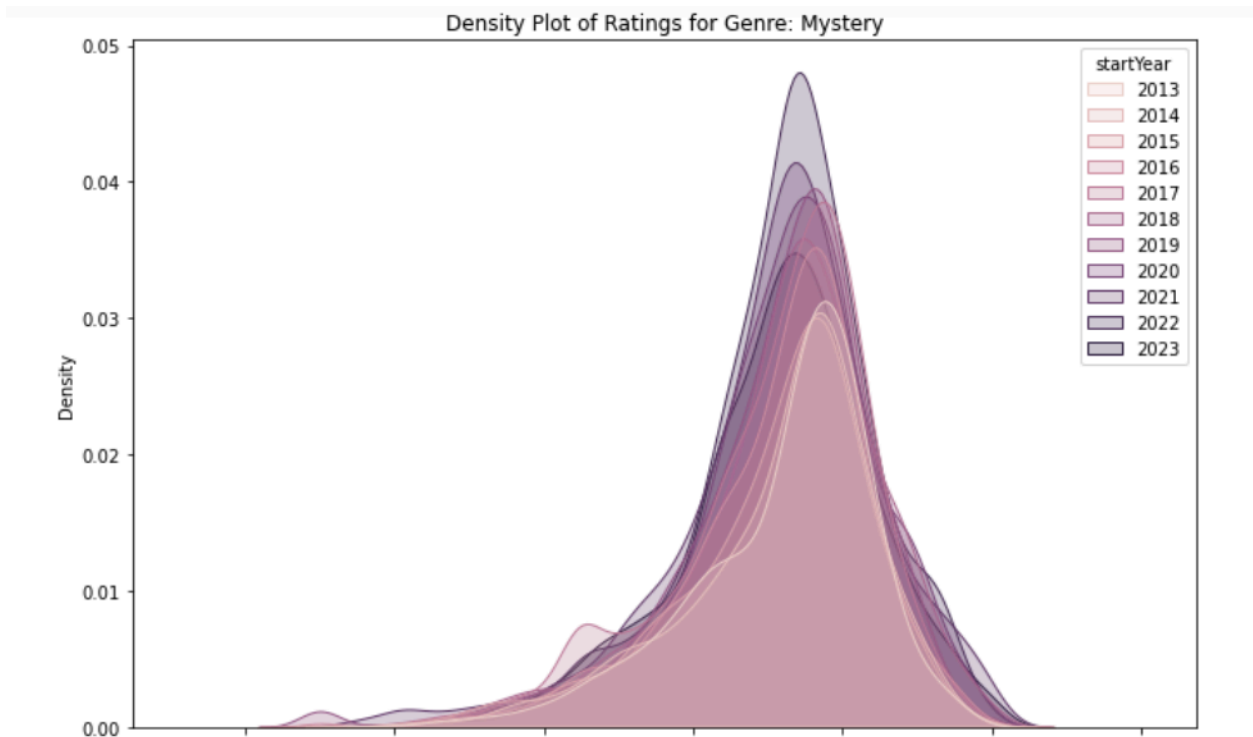
Density Plot of Ratings for Genre: Thriller

This plot specifically focuses on the Thriller genre of movies and shows. Clearly, people did not enjoy thriller movies till 2019 - 2020 and then suddenly the ratings were very high and it's still increasing.

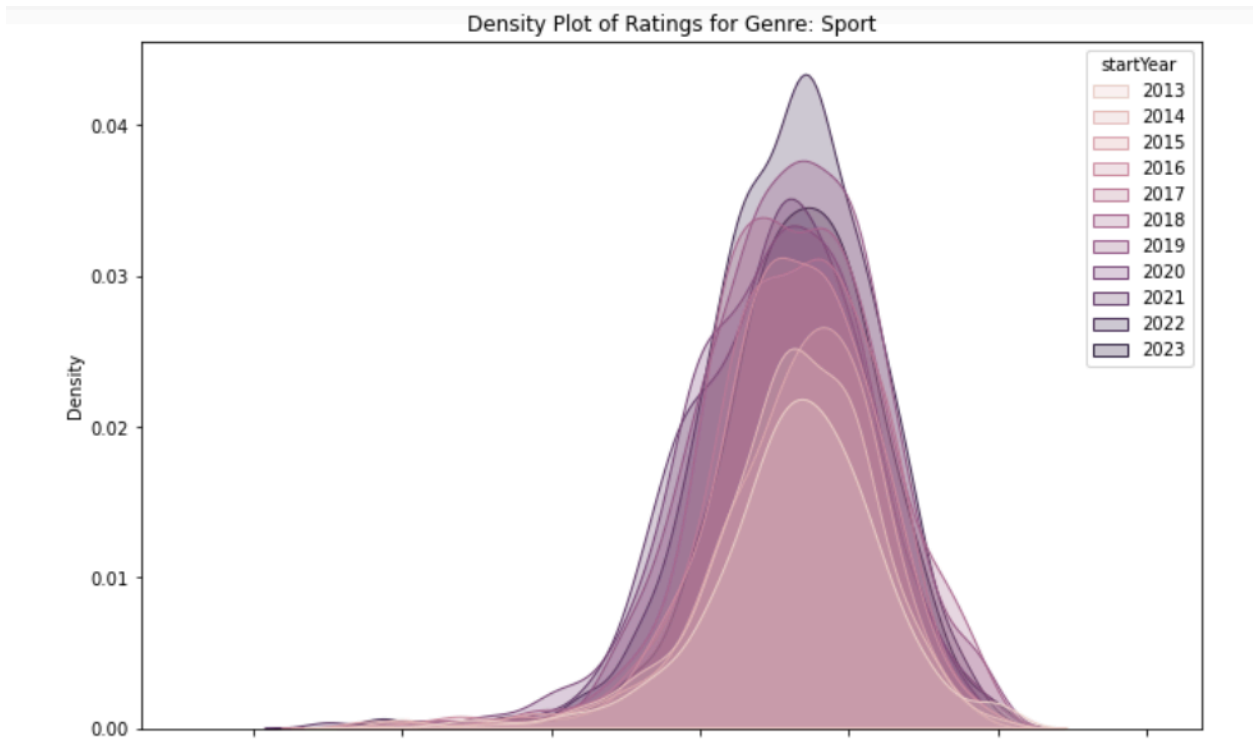Density Plot of Ratings for Genre: Adventure

This plot specifically focuses on the Adventure genre of movies and shows. Across all years, the density of ratings for Thriller follows a similar pattern. The peak density occurs around 2018, suggesting that Adventure films and shows received more ratings during that year. After the peak, there's a gradual decline in rating density. The spread of ratings appears to be narrowing over the years, indicating less variability.
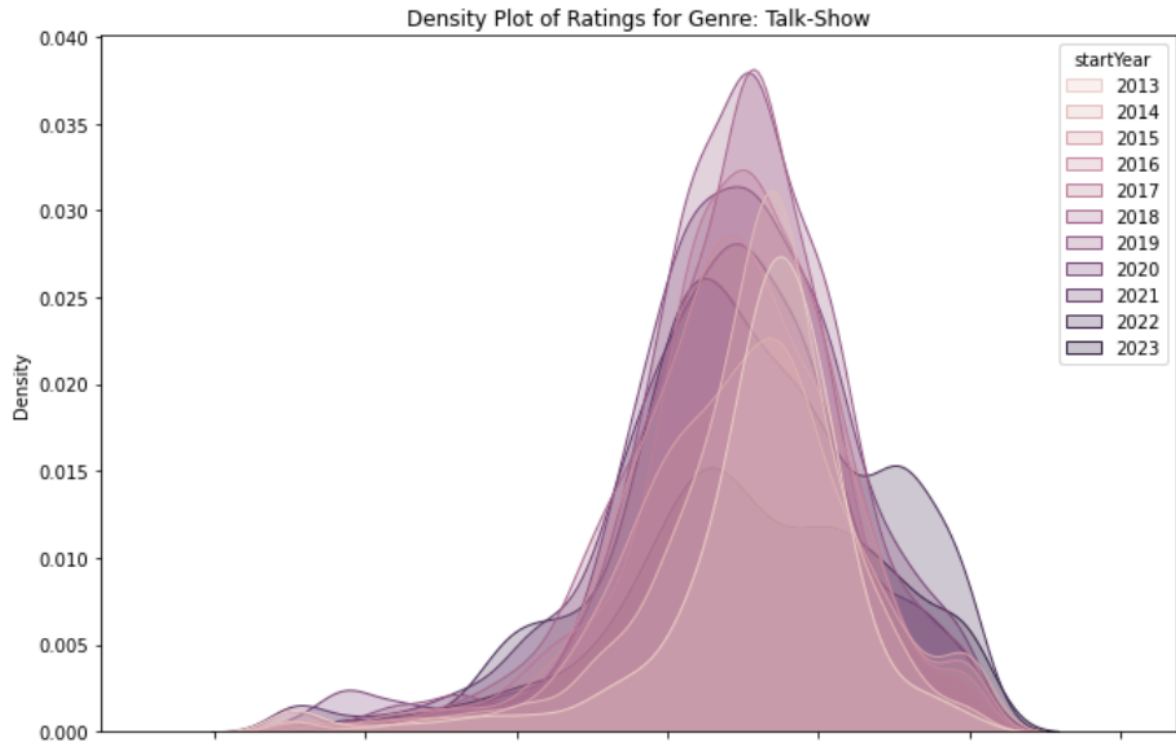
Density Plot of Ratings for Genre: Musical

This plot specifically focuses on the Musical genre of movies and shows. There are fluctuations over the years, with peaks and valleys. The peak density occurs around 2017, suggesting that Musical films and shows received more ratings during that year. After the peak, there's a gradual decline in rating density. There's another smaller peak in 2021, indicating a resurgence in interest or quality. The fluctuations suggest that Musicals received varying levels of attention and appreciation over the years.
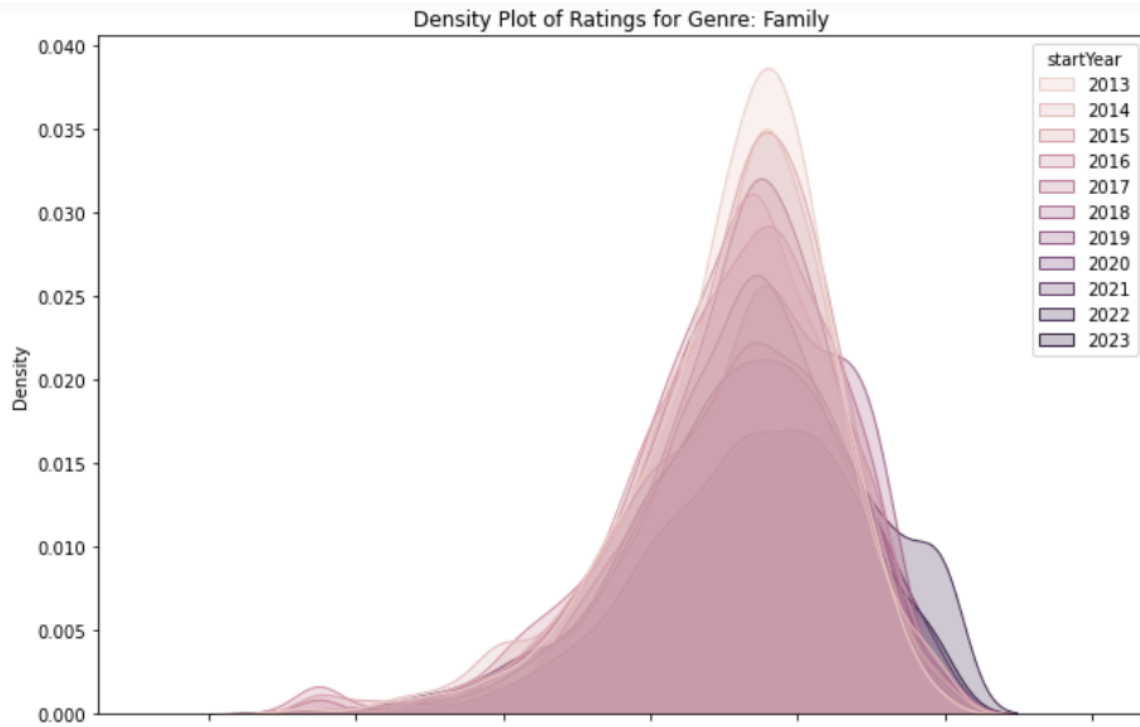
Density Plot of Ratings for Genre: Mystery

This plot specifically focuses on the Mystery genre of movies and shows. The rating density pattern is similar throughout the decade with a high peak in 2021. The highest peak occurs around 2021, indicating a significant concentration of ratings during that year.

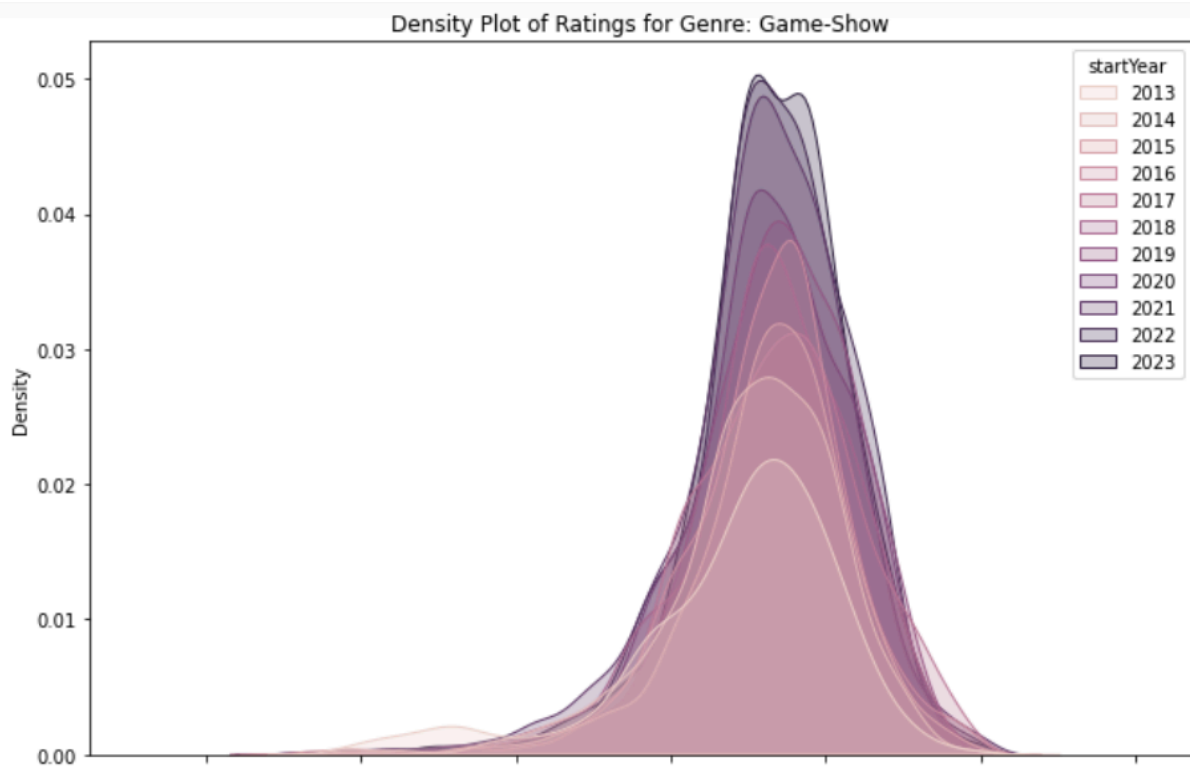Density Plot of Ratings for Genre: Sport

This plot specifically focuses on the Sport genre of movies and shows. The highest density occurs around 2021, suggesting that Sport films and shows received more ratings during that year. The distributions for each year significantly overlap, implying that there hasn't been a drastic change in ratings over the years.
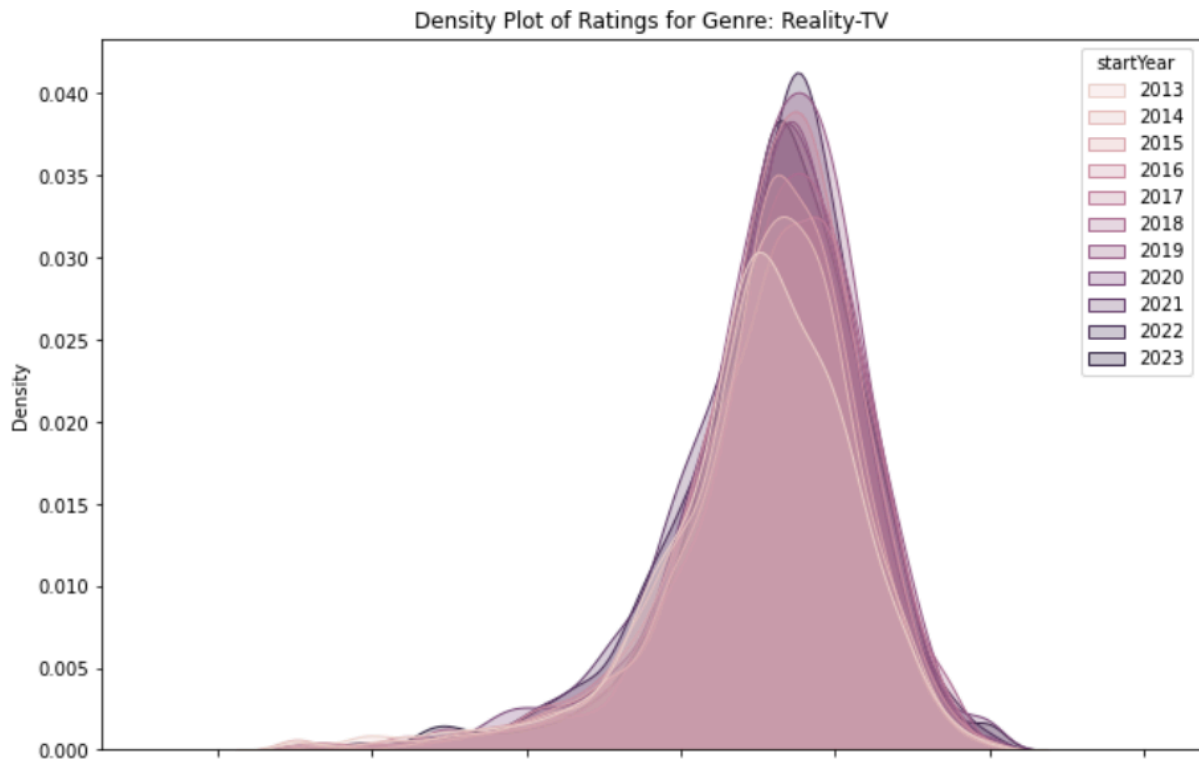
Density Plot of Ratings for Genre: Talk-Show

This plot specifically focuses on the Talk shows. The highest density occurs in 2017 and 2018, suggesting that Talk-Shows received more ratings during those two years. Around 2017, Talk-Shows might have experienced a surge. Perhaps there were popular hosts, engaging interviews, or memorable moments during that time. But after that it declined pretty quickly.
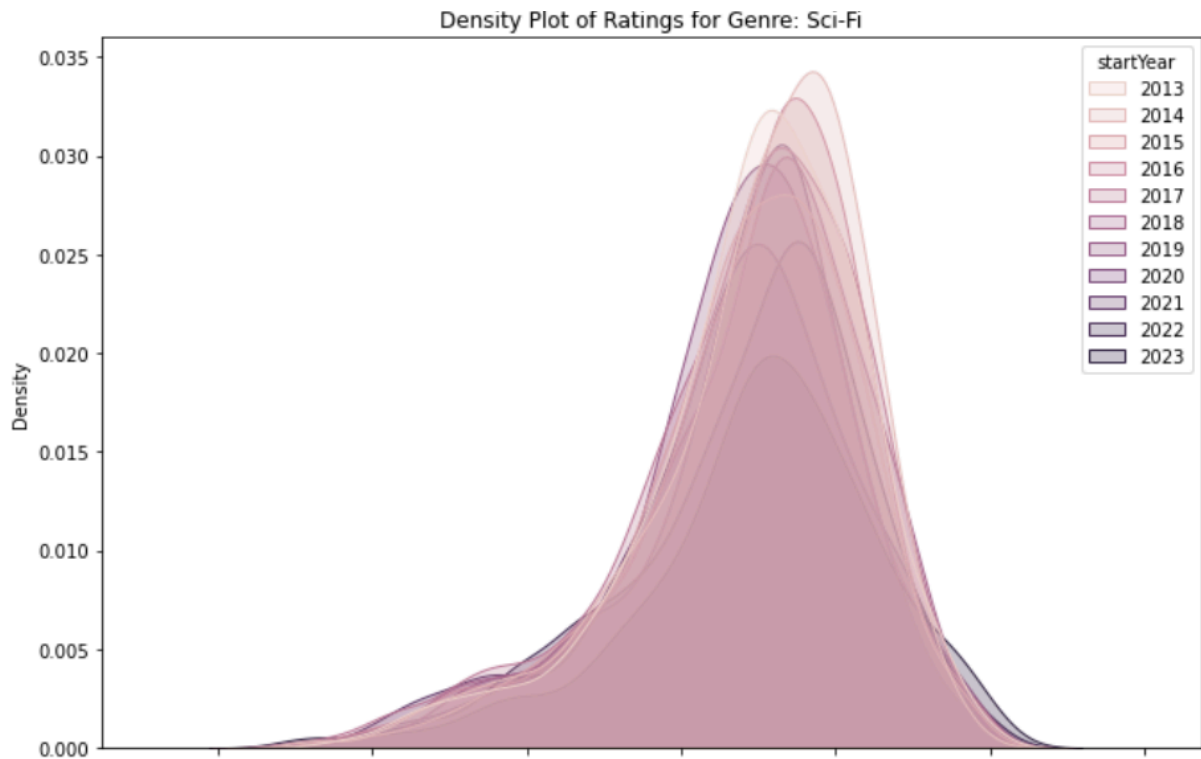
Density Plot of Ratings for Genre: Family

This plot specifically focuses on the Family genre of movies and shows. The peak in ratings for the Family genre occurred in 2013. After 2013, the ratings appear to have decreased gradually. The overall trend suggests that the Family genre experienced higher ratings in the earlier years (around 2013) and has seen a decline since then.

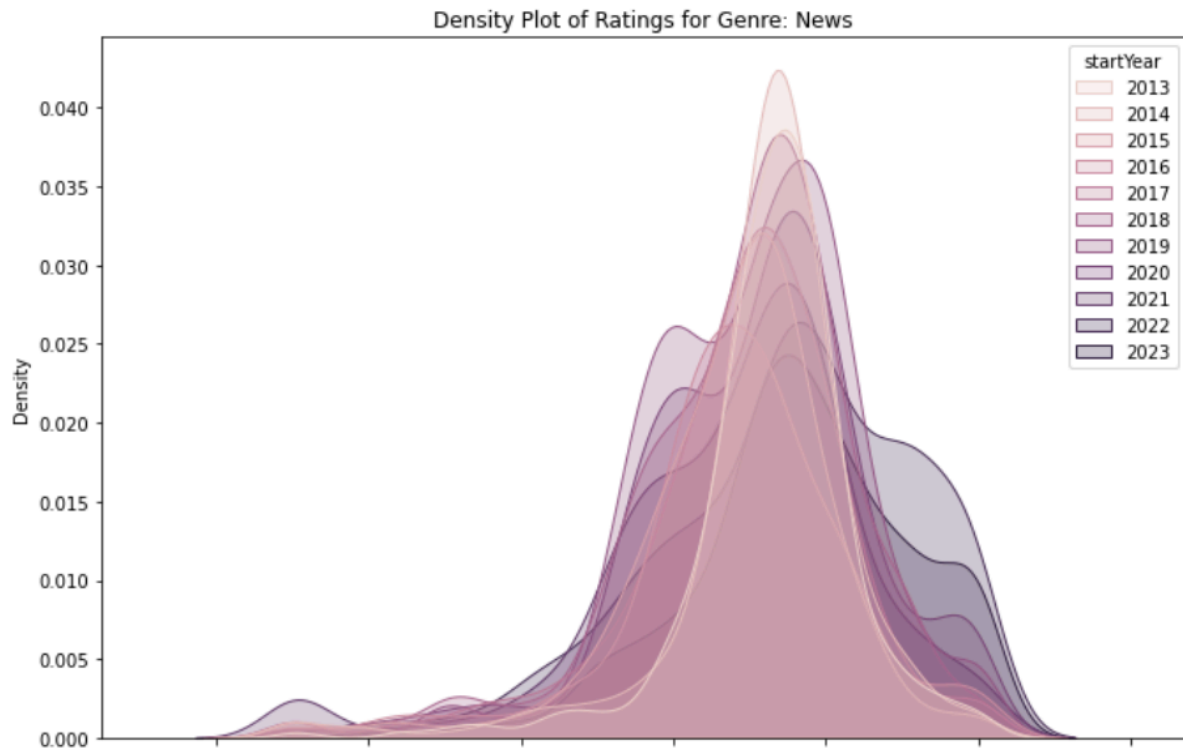

Density Plot of Ratings for Genre: Game-Show

This specifically focuses on ratings for the Game-Show genre (which could refer to TV game shows, quizzes, or related content). Though it didn't have many ratings in the beginning, it seems to be very popular in the 2020's. There is a peak in 2021 and the ratings stay similar till 2023.
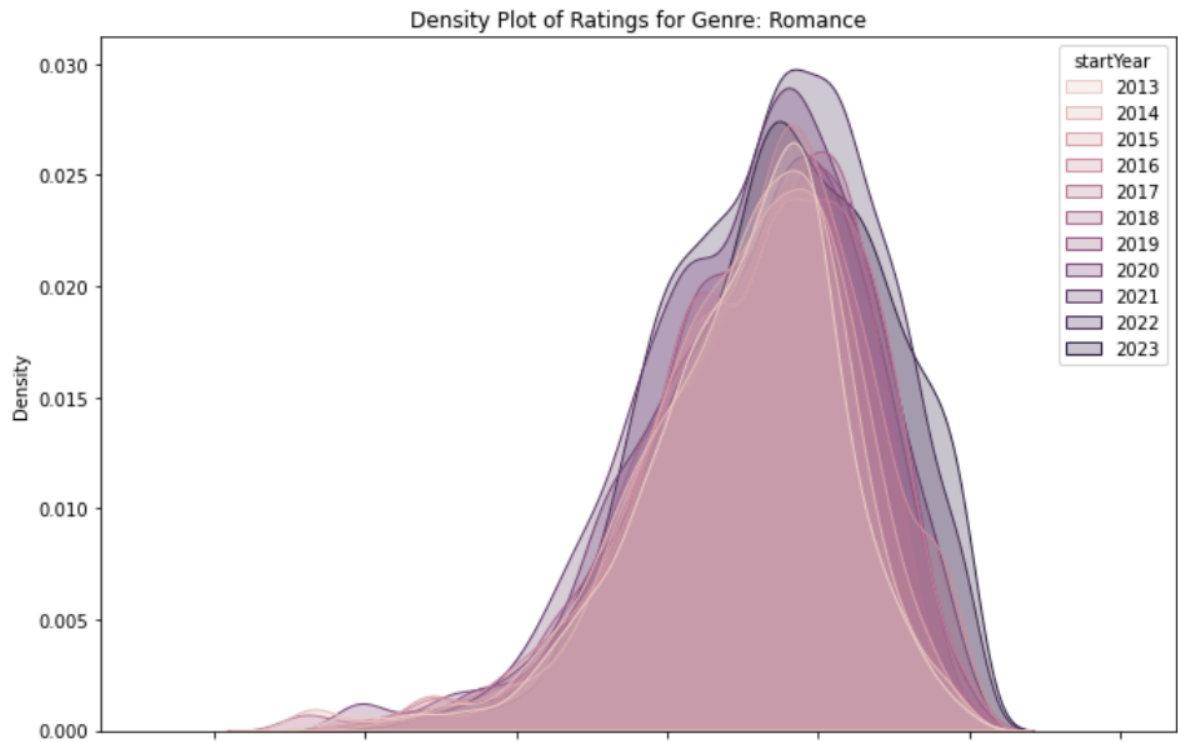
Density Plot of Ratings for Genre: Reality-TV

This density plot focuses on the Reality TV shows. From the plot we can see that the density pattern has been similar throughout the last decade. There is a peak in 2021 and a slight decline after that. Overall, the ratings and it's popularity among people is similar from 2013 to 2023.
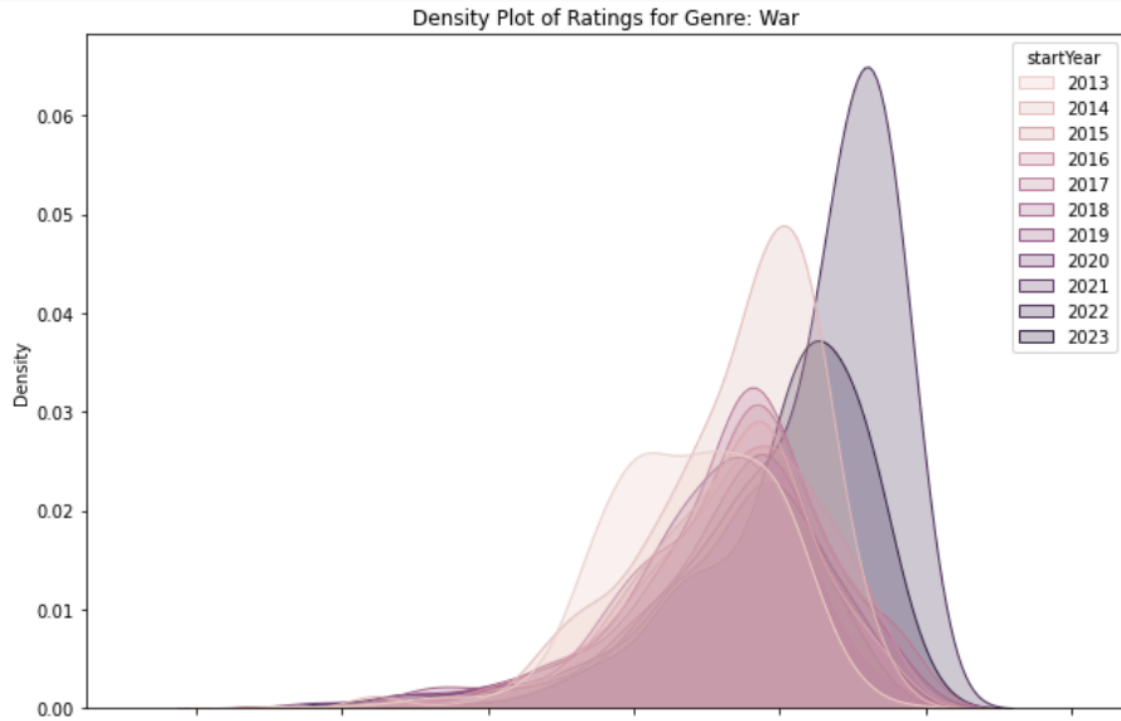
Density Plot of Ratings for Genre: Sci-Fi

This density plot focuses on the Sci-Fi genre of movies and shows. Over the years, the peak of the density curve has shifted to the right. This suggests that viewers seem to be consistently rating Sci-Fi movies or shows more favorably. The density plot has become more concentrated, indicating less variability in ratings. This could imply that viewers' opinions about Sci-Fi content have become more aligned or consistent over time. The peak in 2013 indicates that during that year, Sci-Fi content received the highest concentration of ratings.
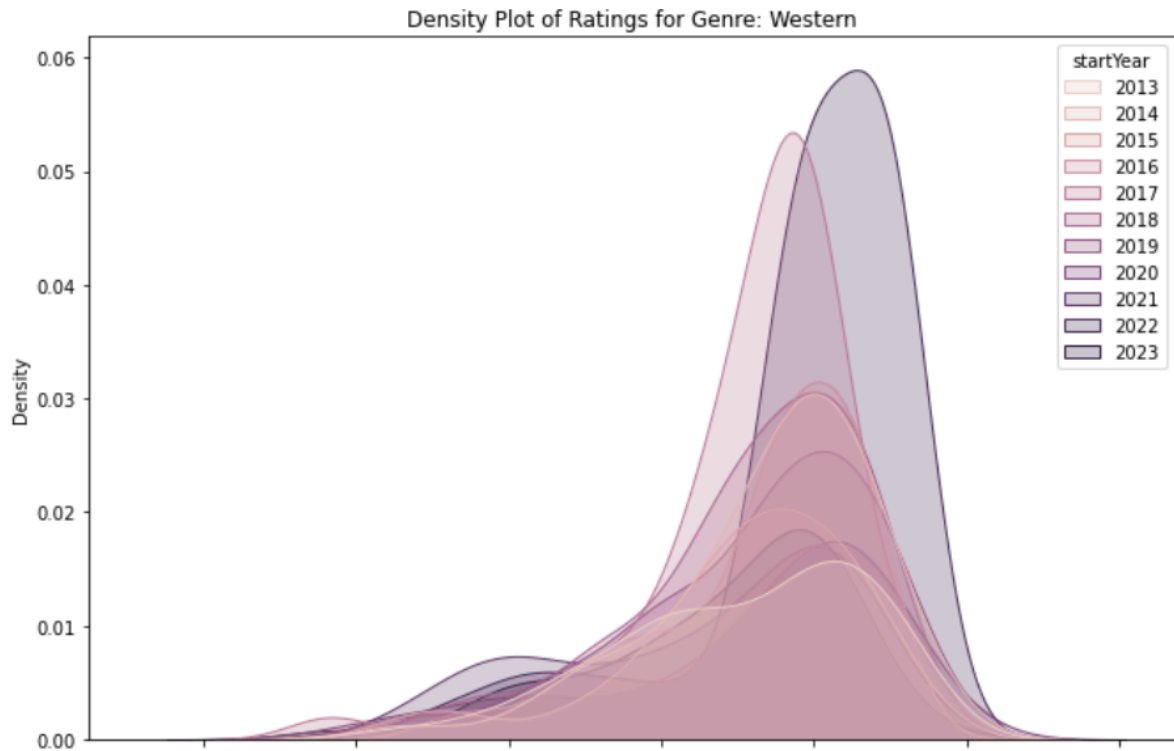
Density Plot of Ratings for Genre: News

This density plot represents the ratings distribution for the genre "News". Initially, in 2013, the peak of the density curve was around the middle of the x-axis, indicating a concentration of ratings at that point. However, as the years progressed, the peak shifted left and right. This suggests that viewer ratings have not been consistent the last couple of years, though they used to be earlier in 2010's.

Density Plot of Ratings for Genre: Romance

This density plot represents the ratings distribution for the genre "Romance". The 2022 curve is higher than previous years, it implies that romance movies in 2022 had better ratings. The 2015 curve is lower, it suggests that romance movies from that year received poorer ratings.

Density Plot of Ratings for Genre: War

This density plot focuses on the genre "War". The plot shows a peak in rating density around 2022, indicating that war genre content received the highest concentration of ratings during that year. From how the plot is moving towards the right we can say that the audience in the 2020's seemed to be rating War movies higher than in the previous years.

Density Plot of Ratings for Genre: Western

This density plot represents ratings for content in the Western genre. The plot shows a significant peak in rating density around2018 and 2022, indicating that Western genre content released in those years received higher ratings compared to other years. It looks like Western genre is not very popular but maybe in the years 2018 and 2022 there were some movies in this genre that were extremely popular and that's why we see those peaks.

CONCLUSION

The final picture that emerges from this analysis is one of dynamic change and evolving tastes in the movie industry. Across various genres, there are distinct peaks and declines in rating density, indicating shifts in popularity and audience reception over time.