**Homework #1  
Problem #3  
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*I certify that I have personally done the coding, generated the figures and written the report without aid from anybody else, and that I have not plagiarized, self-plagiarized, or used AI-generated text. I certify that I have acknowledged any sources I used to complete this assignment*. TT.

# Part 1: Too Many Chefs in the Kitchen?

The goal of this analysis is to explore did the creation of more movie companies caused a fall in movie quality. Initial observations shown the part 1’s correlogram indicated there was a negative correlation between the “Year of Release” and the “Metascore of Movies”. After some preliminary investigation, I raised several questions including whether these scores were decreasing due to an oversaturation of movies, or rather a growing disconnect between movie producers and critics. To explore this, I conducted an average Metascore time series analysis to illustrate the declining trend over time. Additionally, I created a histogram to demonstrate the right-skewed distribution of movie releases and employed KDE plots to compare pre- and post-2000 films visually. Finally, a t-test was performed to assFigure 3ess the statistical significance of these observations, providing a comprehensive understanding of the issue at hand.

The time series presented in **Figure 1** illustrates the relationship between the year of release and the average Metascore of movies, highlighting a negative correlation between these two factors. Annotations along the timeline mark the establishment of various movie companies, suggesting that their proliferation may have contributed to the oversaturation of the market. This trend indicates that more recent films tend to receive lower overall ratings, supporting the hypothesis that the movie market is becoming increasingly crowded. Consequently, this oversaturation appears to correlate with a decline in the overall quality of films. These findings emphasize that overall, there needs to be a reevaluation in the industry to try to increase the quality of films rather than compete by producing more movies.

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Description automatically generated with medium confidence

Figure . This time series displays the relationship between the year of release and the average Metascore of all movies for that year. Additionally, there are annotations on the graph that point out the creation of different major movie companies. Finally, there is a general downward trend in the averages over time from 1920 – 2020.

# Part 2: Many more movies

The histogram in **Figure 2** taken from the data shows that the number of releases per year has increased steadily over the years, with the middle of the distribution peaking around 2010. Given this information, it is easy to say that the distribution is right skewed and that many more movies on this list have been produced more recently. Taking into consideration **Figure 1,** the clear downward trend of Metascore averages per year, and the skewed distribution of movies to the right, there is evidence to presume that movie quality has decreased in the last couple decades due to a likely higher output of these movies. A likely reason for this is that the oversaturation has caused overall dissatisfaction with modern movies, as more time and dedication need to be spent on the development of great movie plots.

A graph of blue bars

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Figure . This histogram displays the relationship between the Year of Release and the frequency of movies in the data that year. Additionally, there is a Kernel Density Estimation (KDE) present that shows that the data on the graph is generally rightly skewed.

# Part 3: Pre-2000 vs Post-2000

The graph in **Figure 3** shows the KDE of two different groups of movies, those produced before the year 2000 and those produced after that year. In the KDE, the Metascore of the Movie is graphed at the bottom, and the two distributions show that they are both relatively normally distributed or skewed right. Using this graph, a clear shift can be seen in the two different distributions from the Post-2000 distribution has a lower overall score than the Pre-2000 distribution. While the shift is prevalent, the overlap between the distributions suggest that some recent movies still maintain a high overall quality, but the overall trend indicates a decline in critical satisfaction.

A graph of a mountain

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Figure . This graph shows the Kernal Distribution Estimation for two different sets of movies, those produced before the year 2000 and those produced after the year 2000. In the figure, both graphs are close to normally distributed, but the Post-2000 has a lower overall score than Pre-2000.

# Resources used to achieve this goal

During the creation of the timeseries, the years that each film company was created in was looked up through the Major film studio history Major section, by Wikipedia contributors (2024).

# References

Wikipedia contributors. (2024, September 20). Major film studios. Wikipedia. <https://en.wikipedia.org/wiki/Major_film_studios#Majors>