INFO 5709: DATA VISUALIZATION AND COMMUNICATION

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Topic-MOVIE TRENDS OVER TIME

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MOVIE TRENDS OVER TIME

ABSTRACT

Our analysis of movie trends explores how different genres have performed over the years, genres which made highest profits and number of movies released genre wise over the period from 1960-2015. This helps in analyzing what genres people are interested in and discusses genres which gained more popularity and genres which lost their popularity over the time and inspects genres that have impact on the popularity, profit, runtime and budget of the films.

INTRODUCTION

Film genres are various forms or identifiable types, categories, classifications or groups of films. Genres provide a convenient way for scriptwriters and filmmakers to produce, cast and structure their narratives within a manageable, well-defined framework. Genres also offer the studios an easily 'marketable' product, and give audiences satisfying, expected and predictable choices.(1) We have continuously enjoyed the movies over the past 100 years, however in the course of recent years, the popularity of specific genres has increased, and some has decreased. As film making techniques have changed and technological advancement has brought several changes in easing the story telling part the films have evolved drastically. There have been great development in film creation advances since the business' beginnings, including sensational advances in visual and enhancements because of computer generated imagery(CGI) starting during the 1970s and 1980s (Pierson 1999; Wang 2009)(6) Worldwide film production is in boom now with the help of new innovations. It's less expensive and simpler than any time to shoot, alter and convey a story, also the impact of the web in sharing thoughts, information and talents. There are many uncovered questions in the patterns of the movie trends. Many

researchers tried breaking the pattern and analyzing if genres have an impact on the popularity, profit, runtime and budget of the films.

Steven Spielberg describes "movies as a technical illusion that people fall for and the film maker job is to take that technique and hide it so well that never once are you reminded of where you are. If the audience stands up and points it out and says – "Wow! What a special effect!" the film maker has failed" while his words remain valid, as the usage of computer-generated imagery (CGI) brought drastic changes which can be completely fictional, and this was a revolutionary step in the history of cinema (2). A new genre of cinema has been added which then was only limited to books. He also says that previously to film a war sequence it would be much difficult to shoot and produce, but now due to advanced visual effects one can direct the sequence within a studio and multiply the number of soldiers that they desire. Due to this, large amount of money can be saved, and enormous efforts of the cast and crew can be saved thereby leading to an increase in films related to war and action genre. Researcher on the basis of his analysis he suggests that "while both the influence of foreign markets and the advance of technology have credibility as explanations for movie genre trends" (7)

Another research study shows that computer animated movies successfully attract families, parents, children, and teenagers and outperform other major movie genres. It also provides initial evidence that, counter to industry thinking in the film business, stardom is not directly associated with movie success.(8) The co-ordination between genres and media can be seen as one of the driving factors which help in evolving new genres. A few genres are comparatively more powerful and beneficial than others. (3) These genres performance have been identified and

analyzed by Reddit by using data from IMDB and has put together a graph that shows the percentage of different movie genres released between the years 1910-2018. The percentage ranges are varied for each genre, and so these graphs are more versed for focusing on the flow of popularity for each particular genre over the years rather than directly comparing the different levels of popularity amongst different genres. It's interesting to see the spikes in War and Action over time, as well as the gradual climb of Documentaries and the decline of Westerns. If anything, these genres reinforce the notion that film is used by people as a way to process their lives and are a reflection on their time and place. The graph uncovers a few fascinating patterns. A few genres, for example, have obviously become undesirable, for example, musicals and westerns. During the 1930s, 15% of the motion pictures discharged were musicals, while in 2018; the figure has fallen far beneath 5%. Furthermore, even though westerns saw revival during the 1970's after its decline in 1960's, the genre had minimal impact on the representation in the recent years as a result of decrease in its popularity.

Some film genres have seen an enormous growth in popularity in these previous two decades. Documentaries, spine chilling thrillers and horror films have all been produced in large numbers consistently since the 2000's. The rise in documentaries gave a great push to all the industries that needed exposure. (4)
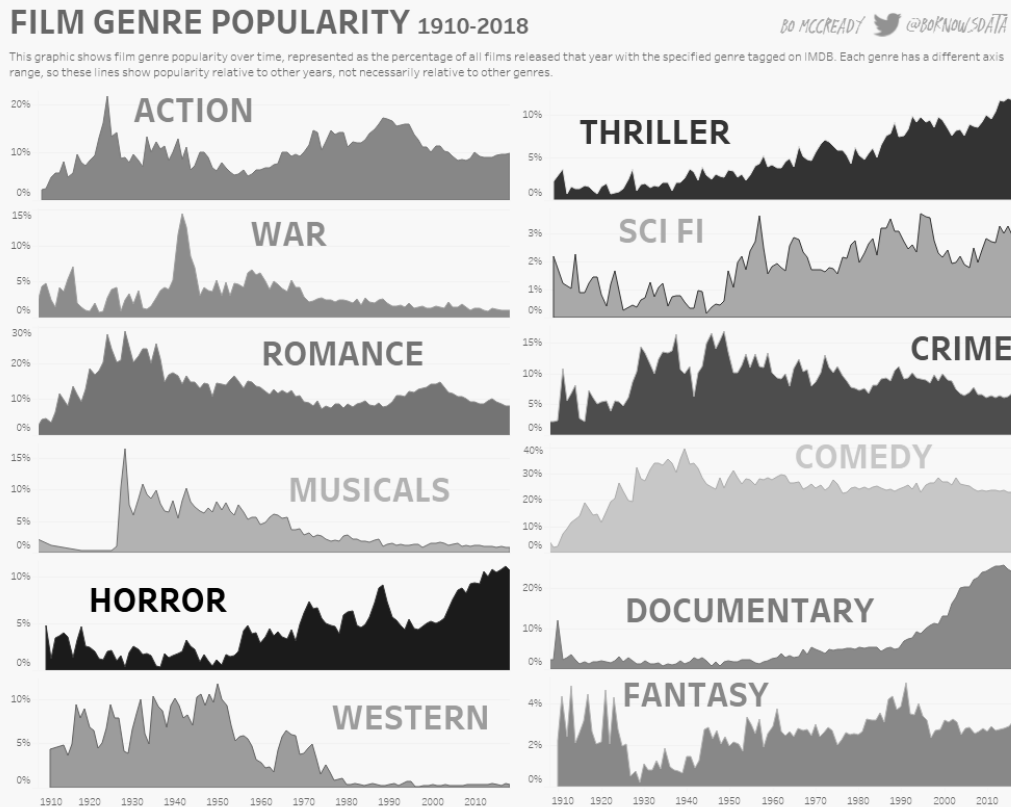
Fig-1 Info graphic breakdown of film genre based on popularity

In the article "Movie Genres and Profits", they have analyzed over 2000 films and concluded that the action and adventure movie lead to higher revenue than other genres and horror took the position of least profitable venture among all the genres standing next to romantic comedies. We can observe from their research that horror films maintained almost the same percentage of revenue over the years. A clear correlation between box office revenue and movie genres is observed in this research (5)

METHODS

I have used Tableau to perform visualizations. It is an intelligent data visualization tool which is centered on Business Intelligence. There are numerous options and choices that can be made and allows furthermore scope of customization of visuals. It supports all the data formats and it can connect to various servers. It can bolster basic statistics and examination without any knowledge of programming; however, it isn't the equivalent with complex ones. It doesn't bolster the overwhelming examination by itself however it tends to be much more beneficial if combined with other tools for example, R to run the investigation and import the outcomes and visualize utilizing Tableau. This can also be visualized with the help of Power BI. It is a powerful cloud-base business analytics service. Basically, Power BI consists of three parts Power BI Desktop, Service (SaaS), Apps. Many Microsoft applications like Office, SharePoint and SQL Server are combined using this Power BI. We can use common languages for querying the data. It can create visualizations for the models built from utilizing multiple datasets. It has an advantage over tableau as it can run R scripts in it without any prior programming knowledge.

DATASET DESCRIPTION:

I have taken the data set from 'Kaggle'- It is an online community of data scientists and machine learning specialists. It helps users to find and publish data sets, explore and build models in a data-science domain, work with other data scientists and machine learning engineers, and enter into competitions to solve data science challenges. The data set which I have chosen from Kaggle was – The Movie Data base which has the data of nearly 45000 films released on or before 2017. Data points include cast, crew, plot keywords, budget, revenue, genre, popularity, posters, release dates, languages, production companies, countries, IMDB vote counts and vote

averages. The important factor that accounts for the total analysis is the genre; the total data revolves around the genre.

Dataset cleaning: The null values in the data set have been replaced with zero values. Duplicate values that are found in the data set have been removed. Extra columns those aren't useful for the data visualization has been removed.

RESULTS:

The cleaned data set contains 10,824 records with 12 columns. I have performed the following analysis to evaluate the hypothesis defined below and provide a quick statistical and analytical analysis on movie trends.
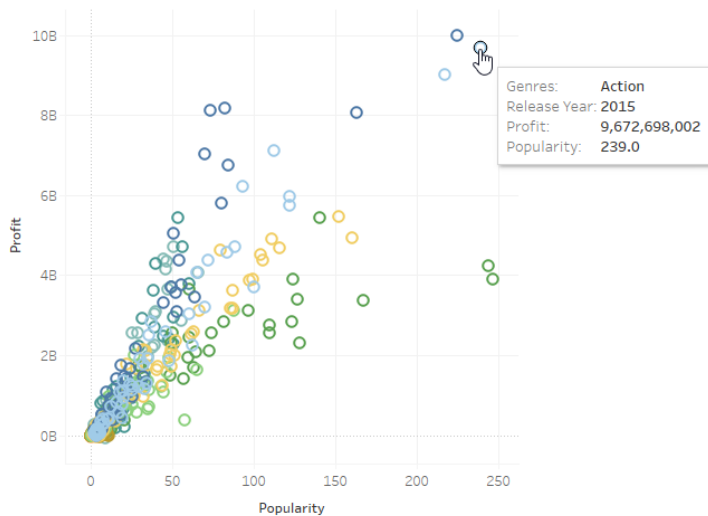
Hypothesis:

1. If the popularity of genres is more, the profits generated are more.

As per the data set analysis, there are 20 genres and the popularity varied over the years one weighting over the other in different years. From the visualization done below through scatter plot in tableau, it can be depicted that popularity of the genre has no effect on the profits made.

Popularity Vs Profit

Genres: Adventure
Release Year: 2015
Profit: 9,990,362,959
Popularity: 224.7

Popularity Vs Profit

Genres: Action
Release Year: 2015
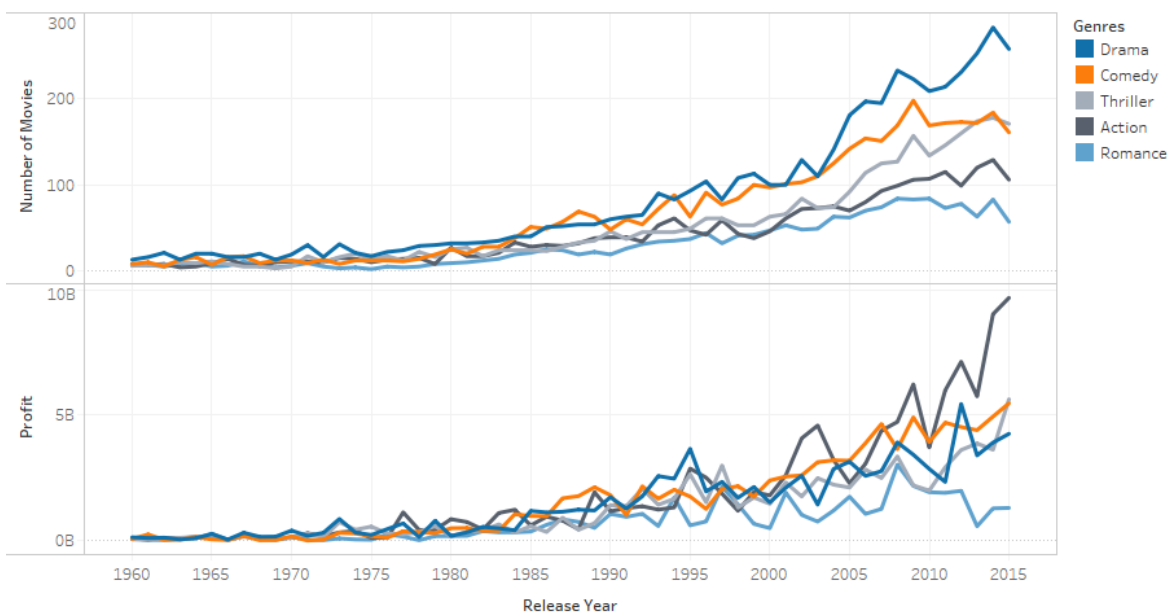Profit: 9,672,698,002
Popularity: 239.0

In the above scatter plots, we can observe that the genre 'Adventure' has less popularity but the profits made by that genre are the highest. In the second plot, we can see 'Action' genre enjoying more popularity, but the profits made are less than that of 'Adventure' genre which is less

popular than that of 'Action'. From the above analysis, we can say that popularity is not a crucial element in generating profits. Hence, we can reject our null hypothesis.

2. The profits are high if the number of movie releases in that genre is high.

For the above hypothesis, I have taken top 5 most released genres into account and considered the profits of their genres.
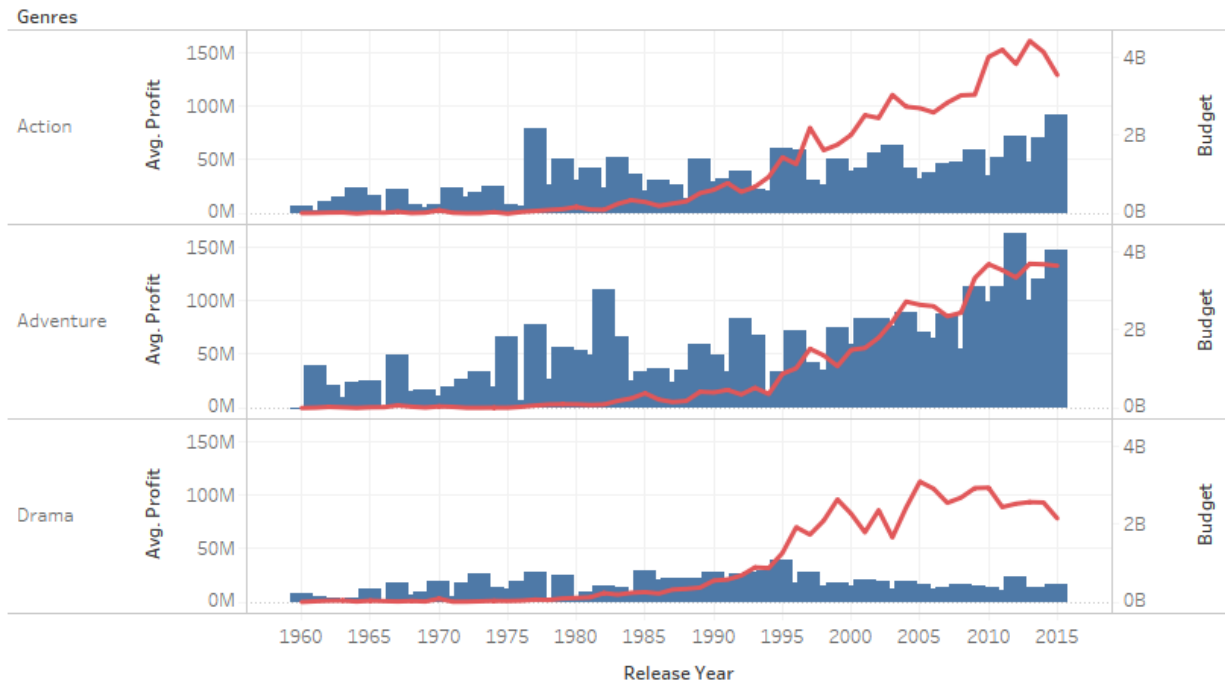

Top 5 most released genres and its profit

The trends of sum of Number of Records and sum of Profit for Release Year. Color shows details about Genres. The view is filtered on Release Year and Genres. The Release Year filter ranges from 1960 to 2015. The Genres filter keeps Action, Comedy, Drama, Romance and Thriller.

In the above graphs, we can observe that 'Drama' genre has the greatest number of releases, but the highest profits are seen for 'Action' genre. Hence, we can say that highest number of releases doesn't necessarily need to see high profits. So, we can reject this hypothesis.

3. Action genre has highest average of profits when compared with the budgets among other genres.
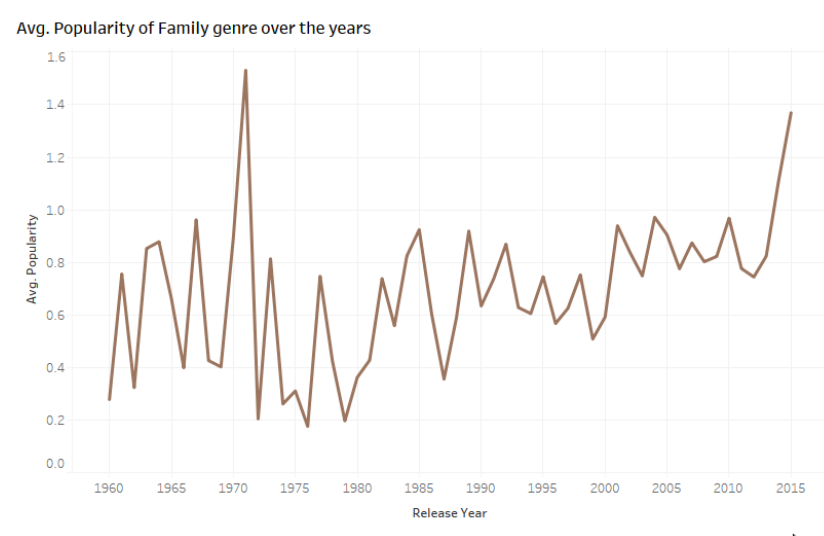
I have taken top 3 highest budget genres and their profits over the years for the analysis and could say that 'Adventure' genre has the best average bet of profits for the budget invested. This is evident from the below graph. The budget of the Action' genre is high, but the average profits are low when compared with 'Adventure' genre.

Top 3 highest budget genres and their average profit over the years

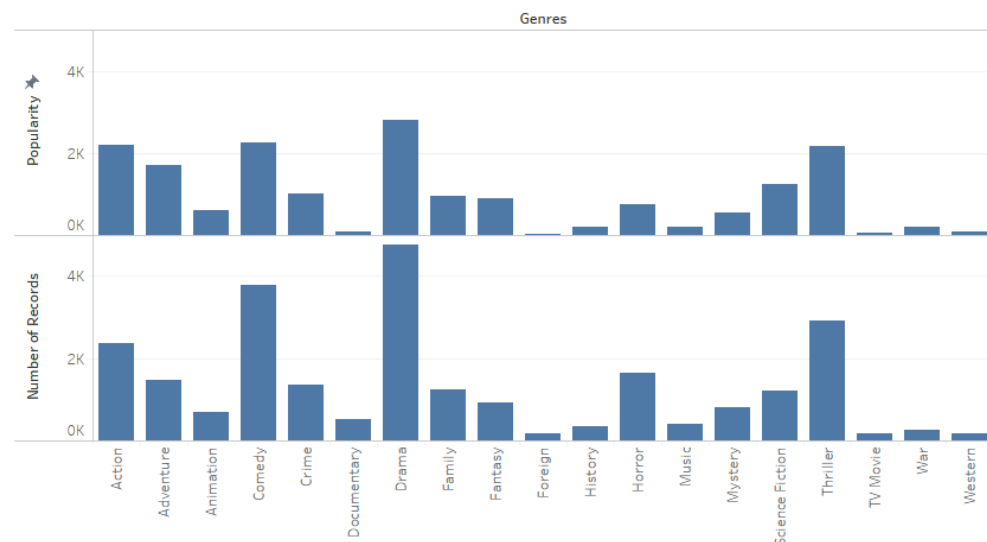4. 'Family' genre has lost its popularity over the years.

The below analysis is done for the genre 'Family'. The below graph clearly depicts that the average popularity of 'Family' genre has decreased gradually over the years. It has seen a high rise in the year '1971' and from then it has seen few up's and downs and lost its popularity that it had previously. Hence, we accept this hypothesis.

Avg. Popularity of Family genre over the years

5. Runtime of the film genre increases the popularity of the film genre

Runtime are different for different films and genres. From the below analysis of the bar graph we can say that Runtime of the film genre does have an impact on the popularity of the film genre.
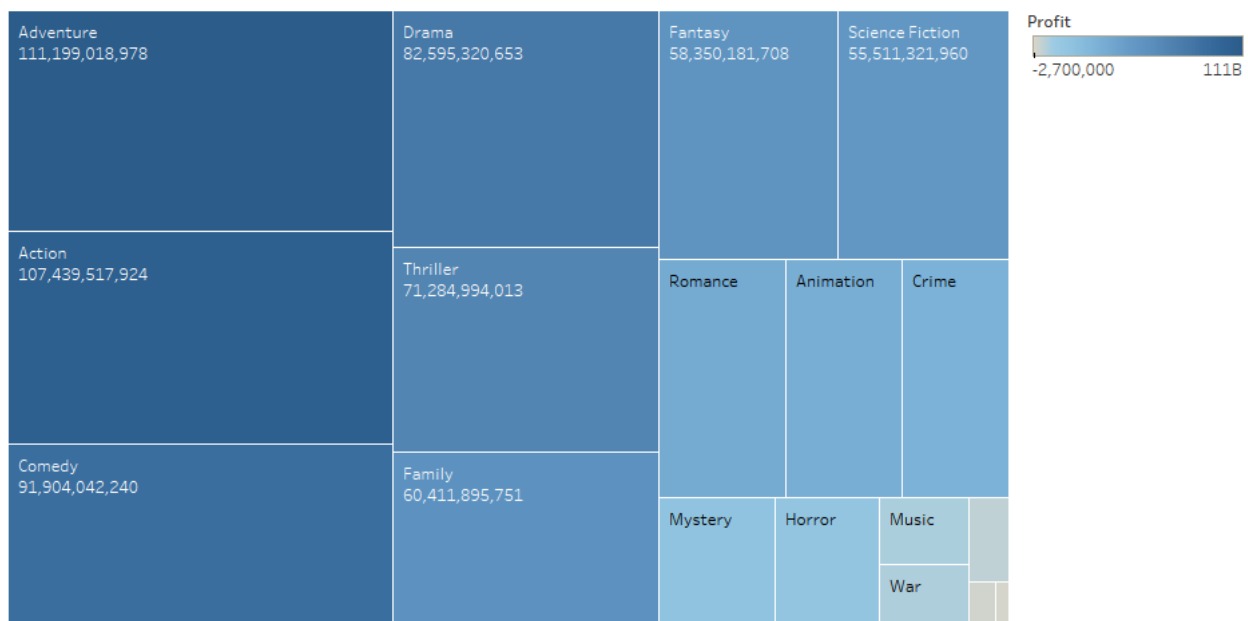

Run time vs Popularity

In the above graph, we can see that 'Drama' genre has most runtime and the popularity of that genre also seems to have more. Hence, we can conclude that film genre with most run time enjoys the most popularity. So, we do accept this hypothesis based on the above analysis.

Question: Which genre of the movie made highest profits over the years?

Answer: After performing analysis with the help of the below graph, I could say that 'Adventure' genre has made highest profits than all other genres.

Genres and sum of Profit. Color shows sum of Profit. Size shows sum of Profit. The marks are labeled by Genres and sum of Profit. The view is filtered on Genres, which keeps 21 of 21 members.

DISCUSSION

From the above results it is evident that genre with highest popularity doesn't generate high profits, like wise genres. If the number of movie releases is high genre, it doesn't necessarily have to generate high profits. We have seen 'Action' genre performing more in terms of profit

though it has a smaller number of movie releases. The 'Family' genre has seen its dream run in the year '1971' hinting people accepted more family genre movies in that time as the popularity of the genre has seen ups and down's in the recent years. The one factor that is driving the popularity is 'Run time'. We have seen in above results, that if runtime of the movie is more, it enjoyed more popularity. We can observe that the popularity of most of the genres has been increased except for the family genre. So the audience is enjoying all kinds of movie genres but it is clearly evident that profits of the movie aren't due to the popularity, number of releases, runtime. It clearly has other external factors effecting. The profits of the movie are changing as per the taste of the audience during that particular period of time and it is a continuous changing process. But one can make good profits by observing the average profits that a genre is making and producing more movies of that genre. The average run time of the movie has been decreasing continuously though the popularity is being increased but isn't making profits. It can be understood that people don't like lengthy movies. The number of movies releasing has been increasing year by year.

ACKNOWLEDGEMENT

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