

FILM SALES ANALYSIS

PROJECT TEAM (GROUP 2)

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PROJECT INFORMATION

Project Scope: Our team will analyze IMDb's API to parse out relevant data (e.g., revenue, genre, premier). After creating data frames using pandas in Jupyter Notebook, we will be able to visualize our data with matplotlib tools to better inform financial decisions.



Goals: Creating a statistical analysis that provides predictions of which movies, studios, directors, and actors will lead to the most sales.



Analysis of movies:

Title of movie	Actors	World sales	Directors	IMDB/Rotten Tomatoes score	Year	Studio	Rating	Genre
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QUESTIONS

- What factors can lead to better sales?
 - Which film studios/directors/actors have the best sales?
 - Does a movie's reception impact the revenue?
 - What genres are most produced?
 - Does movie rating affect sales?

PROJECT DATA SOURCES

- API:
 - OMDB API
 - <https://www.omdbapi.com/>
- csv data:
 - Top 1000 Highest Grossing Movies
 - [https://www.kaggle.com/datasets/sanjeetsinghnaik/
top-1000-highest-grossing-movies](https://www.kaggle.com/datasets/sanjeetsinghnaik/top-1000-highest-grossing-movies)

DATA CLEANUP

Titles

Formatting titles in Highest Grossing Movies dataset

Merging

Merging Highest Grossing Movies dataset with OMD API dataframe

Delineating

- Delineating lists into different columns
- Removing special characters from separated columns

Scores

Formatting scores

ANALYZING PEOPLE AND ORGANIZATIONS INVOLVED IN THE MAKING OF THE TOP 1000 GROSSING FILMS

Can we determine the best Studio to partner with to make a best-selling movie?

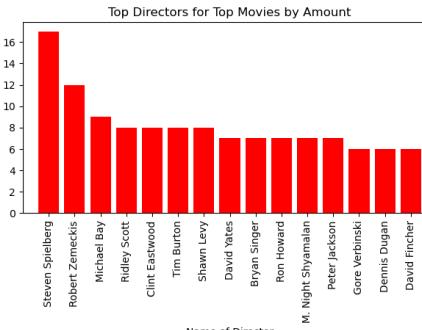
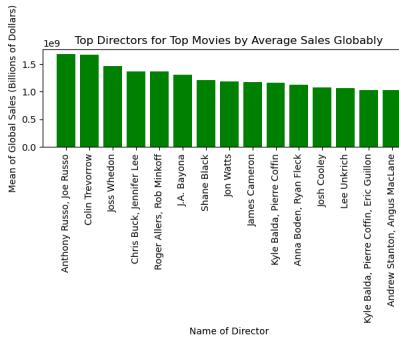
How about hiring a director or actors with top billing?

Would you consider consistency or raw sales when making such a selection?

- Let's Break it Down
 - Top Grossing Movie based on the available data:
 - Avatar (2009) ; Directed by James Cameron ; Distributed by 20th Century Fox ;
 - Grossing \$2,847,246,203 globally.

BREAKDOWN BY DIRECTOR

- The graphs below show the top 15 credited directors when looking through all of their films that fell within the top 1,000 highest grossing movies of all time with consideration to overall total sales connected to their role as director, the total number of movies that they have in the top 1,000 and the average gross sales the directors make per movie.



A CLOSER LOOK AT THE DATA (DIRECTORS)

Most number of Films appearing on the list:

- Steven Spielberg (17)

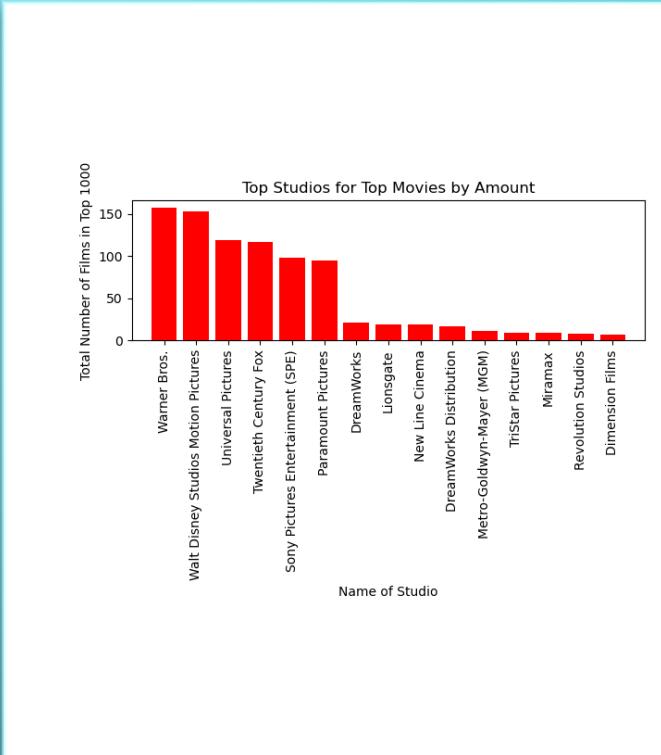
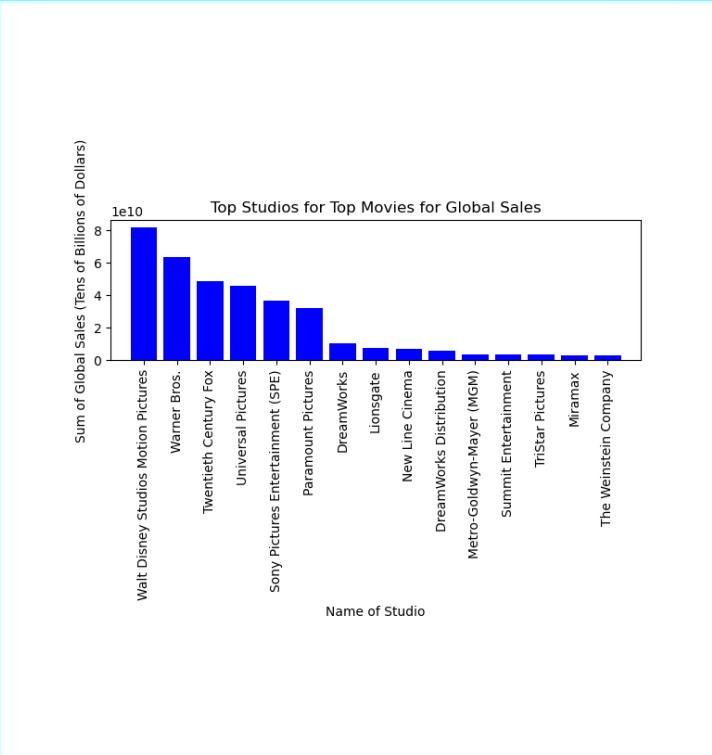
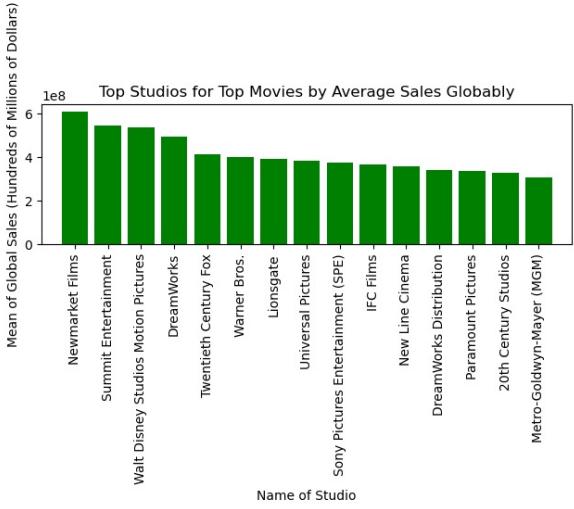
Highest Total Global Sales across all films appearing on the list:

- Steven Spielberg (\$ 7,738,324,184.00)

Highest Average Total Global Sales based on appearances on the list:

- The Russo Brothers, Anthony and Joe (1,678,405,020.25)

BREAKDOWN BY STUDIOS



A CLOSER LOOK AT THE DATA

Most number of Films appearing on the list:

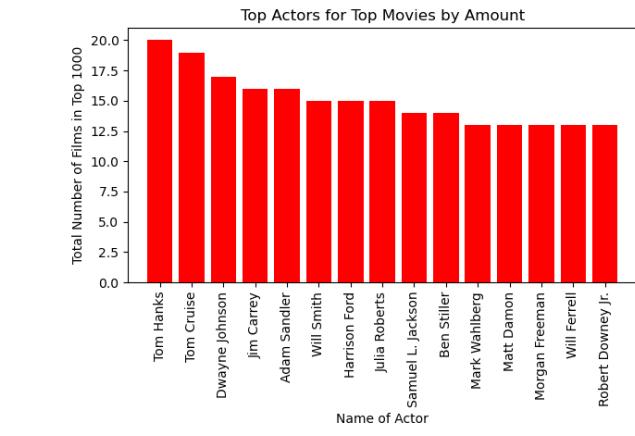
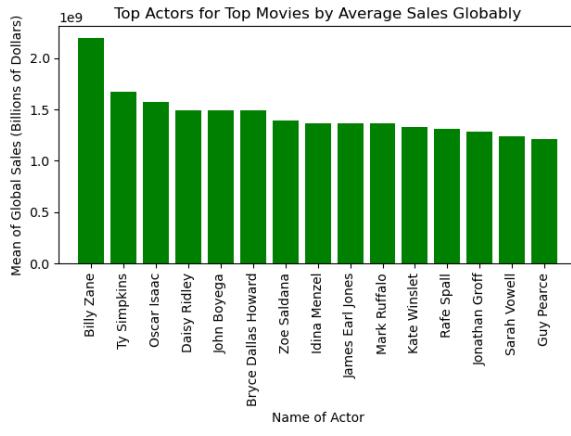
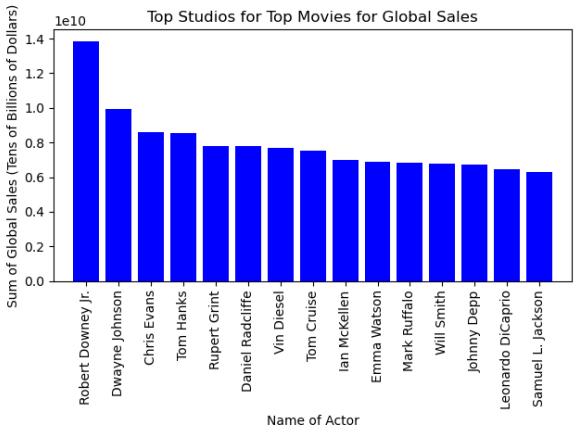
- Warner Bros. (158)

Highest Total Global Sales across all films appearing on the list:

- Disney (\$ 82,075,006,492.00)

Highest Average Total Global Sales based on appearances on the list:

- Newmarket Films (\$ 612,054,506.00)



BREAKDOWN BY ACTOR

A DEEPER LOOK AT THE DATA (ACTORS)

Most number of Films appearing on the list:

- Tom Hanks (20)

Highest Total Global Sales across all films appearing on the list:

- Robert Downey Jr. (\$ 13,828,282,311.00)

Highest Average Total Global Sales based on appearances on the list:

- Billy Zane (\$ 2,201,647,264.00)

RECEPTION AND SALES

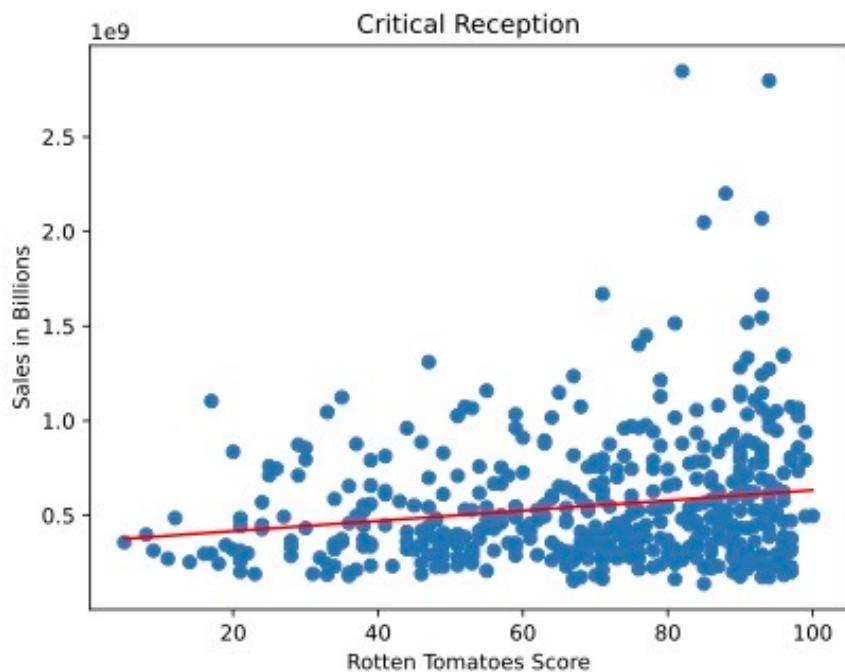
With the rise of social media and online metrics helps to better transmit movie ratings to consumers.

Changes in the film industry means the role of professional critics is changing, and Production Studios look to community engagement to promote movies.

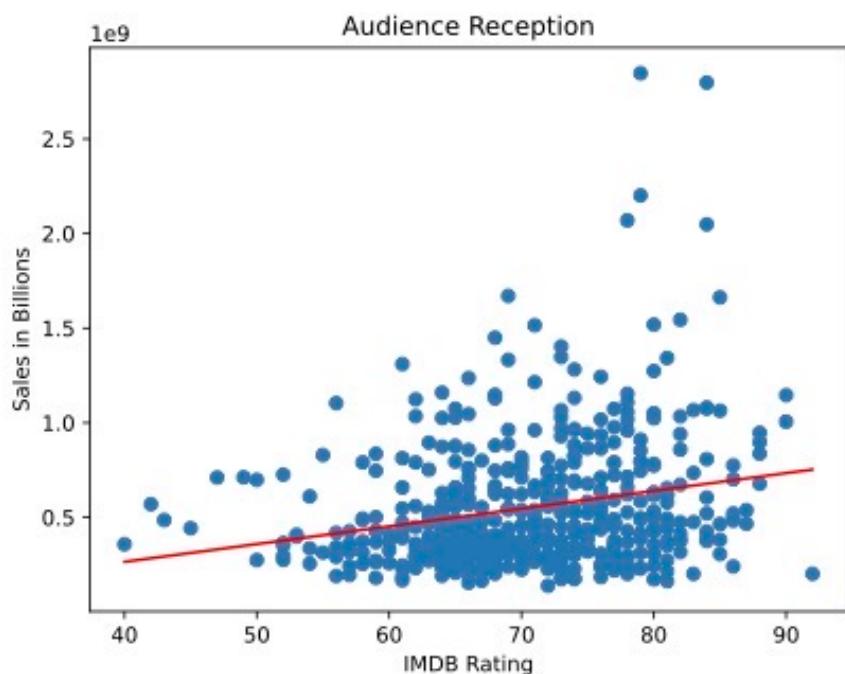
Ratings may be a great measure of community engagement

CHART REVIEWS AND RATINGS

- One such issue may be that these two systems are very different and vary over the years.
- $y = 2702226.49x + 362820548.41$
- R squared = 0.03



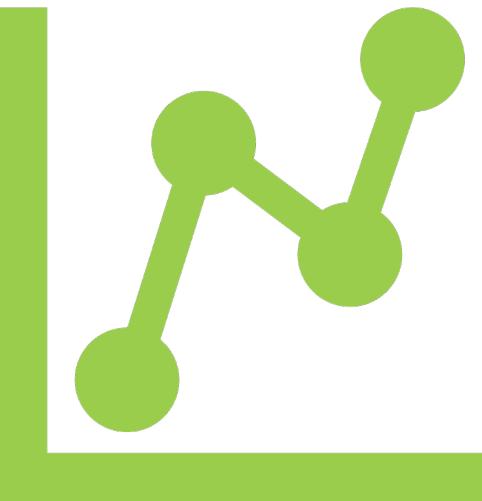
CHARTING REVIEWS AND RATINGS



- There appears to be minimal correlation for either critical or audience rating and box office sales.
- $y = 9380630.74x - 109890544.06$
- $R^2 = 0.05$

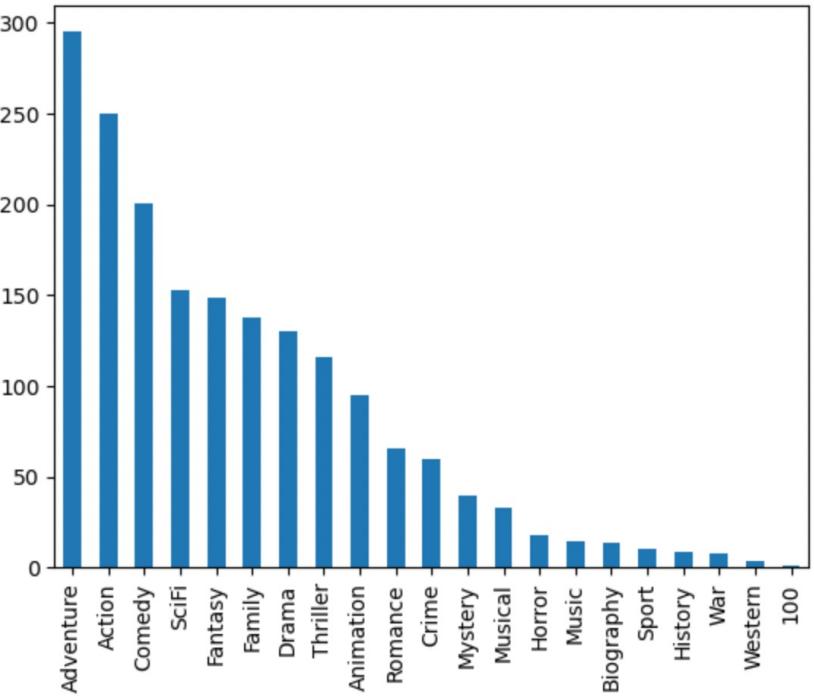
ANALYSIS

- There appears to be minimal correlation for either critical or audience rating and box office sales.

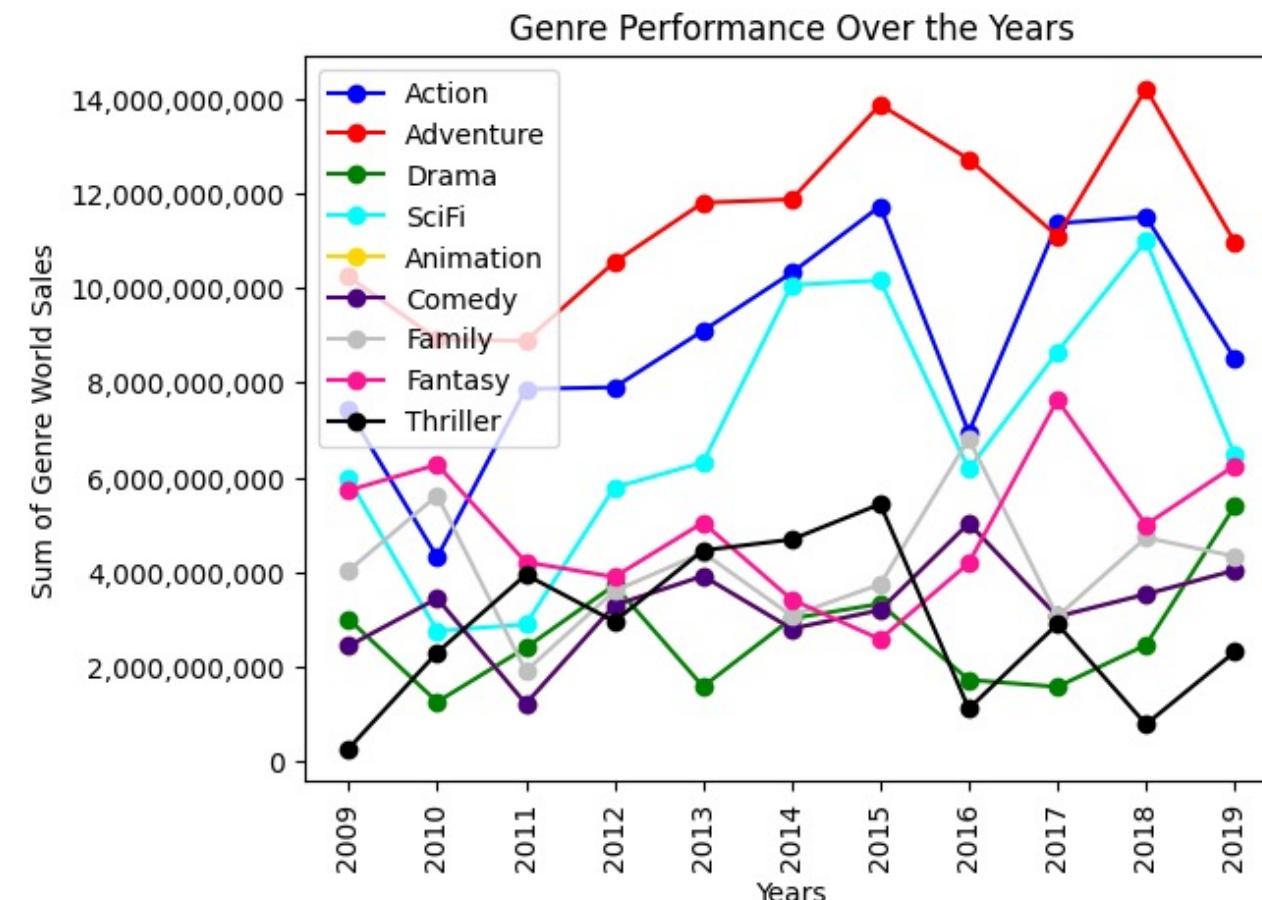


MOST PRODUCED GENRES

- Presented in the bar graph you can see that the most produced movies are adventure, followed with action, and comedy.
- The least produced have fallen into the category of history/ older times.
- According to the data provided the best choice to produce a movie would be adventure if you want to follow along with other producers. You might want to avoid history, western, sports, music, even horror.



HOW HAVE GENRES PERFORMED OVER THE YEARS?



LOOKING AT THE DATA (GENRE PERFORMANCE)



Adventure genre has maintained the highest performance



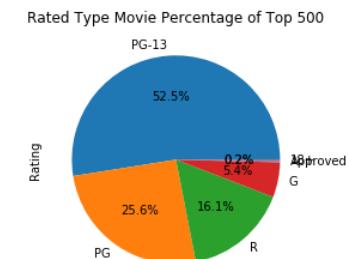
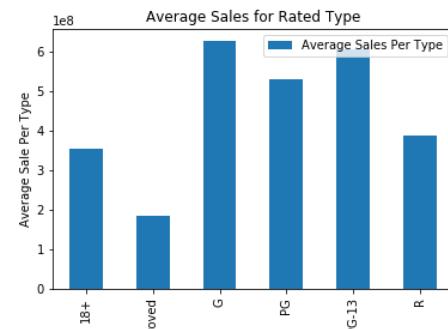
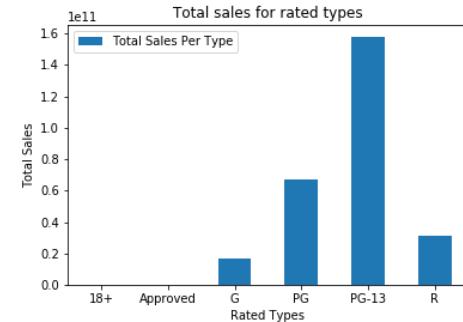
SciFi movies have shown an upward trend

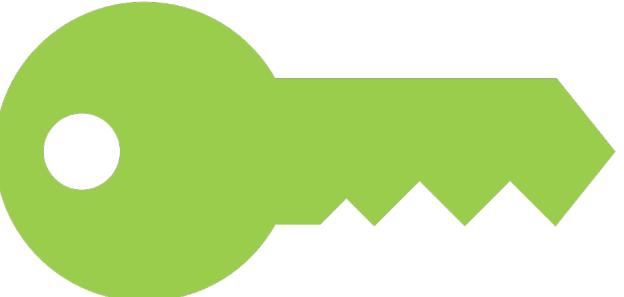


Comedy movies have shown the most consistency

DOES MOVIE RATING AFFECT SALES?

- Only one movie for 18+ and “Approved” in top 500
- G rated movies rival PG 13 for movie sales per rating worldwide
- Family Friendly movies are more likely to make the most money
- PG 13 are decently family friendly but still have darker topics that can be discussed, therefore it can possibly appeal to more audiences





LIMITATIONS

- The amount of information provided
- We were only allowed a certain amount of request with our api key (1,000)
- How far back in years we were going
- Data from Highest Grossing Movies only included films up to January 2022

CONCLUSIONS

- Null hypothesis: The sales of a film has no correlation between which actors, genres, studio, and director that are involved with the film. Secondly, a film's genre should not have an effect on sales; and, there will not be any trend seen in the popularity(as measured in percentage of movies released in a given year) of genres over time.
- According to our data the director who has made the most money is Steven Spielberg. The studio with the most money pulled in is walt disney studios motion pictures.
- Top actor with the most sales is Robert Downey Jr. The film rating that appears most often and gets the most money is PG-13.
- Many of the top sales have been in adventure.

QUESTIONS?

WORKS CITED

- Chiu, Ya-Ling, et al. “Do Critical Reviews Affect Box Office Revenues through Community Engagement and User Reviews?” *Frontiers in Psychology*, vol. 13, 2022, <https://doi.org/10.3389/fpsyg.2022.900360>.
- Shaw, Lucas. *Critics and Fans Have Never Disagreed More About Movies*. Bloomberg, 28 Aug. 2022, <https://www.bloomberg.com/news/newsletters/2022-08-28/critics-and-fans-have-never-disagreed-more-about-movies>. Accessed 13 May 2022