



Computing Vision Business Proposal

Fab Five: Graham Costa, Erin Lee, Jack Pacheco, Uma Sethuraman, Jacky Rivera

Business Understanding

The success of movie studios relies on performance, whether it be the box office or on audience ratings
There are many components to consider when entering the studio business
Some components are more critical to profitability while others are more critical to film quality



Three Major Factors

Multiple data sources were used to which 3 factors contributed to the success of a movie*

Runtime

Is there an ideal movie duration that leads to higher profit percentages or audience ratings?

Genre

Is there a specific genre that has higher profit percentages or audience ratings than others?

Budget

How does the budget affect overall profit percentages or audience ratings of a movie?

* We define success as either profitability or audience rating

Combined Dataset

We cleaned and combined our data sources to collect a representative sample

IMDb Data

This was the primary and most comprehensive dataset to which all other datasets were joined.

Data Used: Title, Release Year, Runtime, Genre, Rating

TMDb Data

Data from TMDb was very similar to data from the IMDb dataset, and it was primarily used for rating data.

Data Used: Rating

Movie Budgets Data

The data in this collection contained information about the revenues and budgets of movies.

Data Used: Budget, Domestic Gross Revenue, Worldwide Gross Revenue

Movie Gross Data

This data overlapped with the budgets dataset and was mainly used for studio data.

Data Used: Studio

Final Combined Dataset

After the data cleaning process was complete, the final dataset contained 3,122 rows with each row pertaining to a movie. This sample was used to represent the overall population with inferential statistics being used for the analysis. Data was grouped, compared, and visualized to extract concrete recommendations.

Runtime

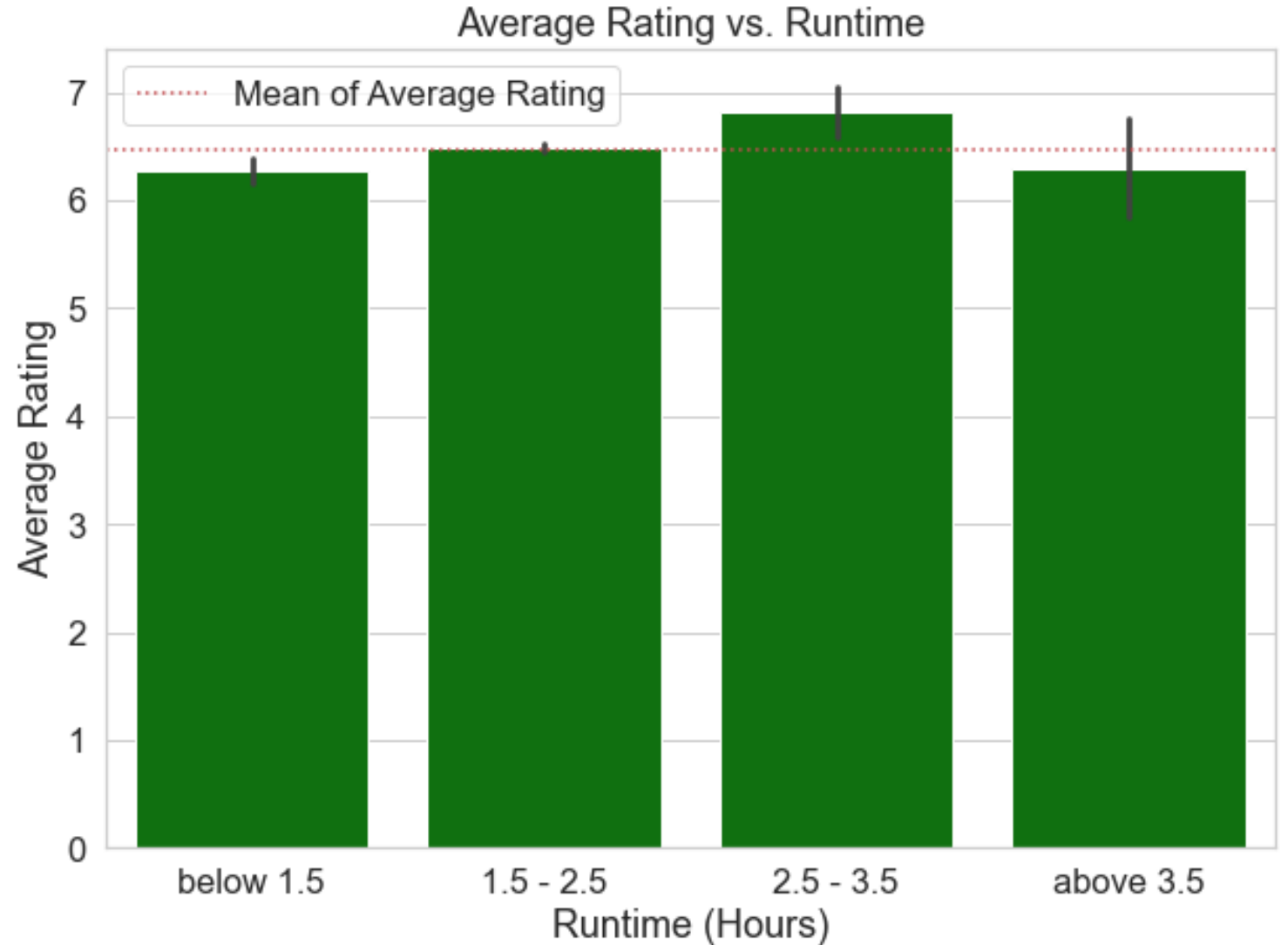
Best Runtime by Average Ratings

Variables:

- Runtime (hours)
- Average Rating (scale: 1 – 10)

Conclusion

- 2.5 - 3.5 hours has the highest average rating.



Runtime

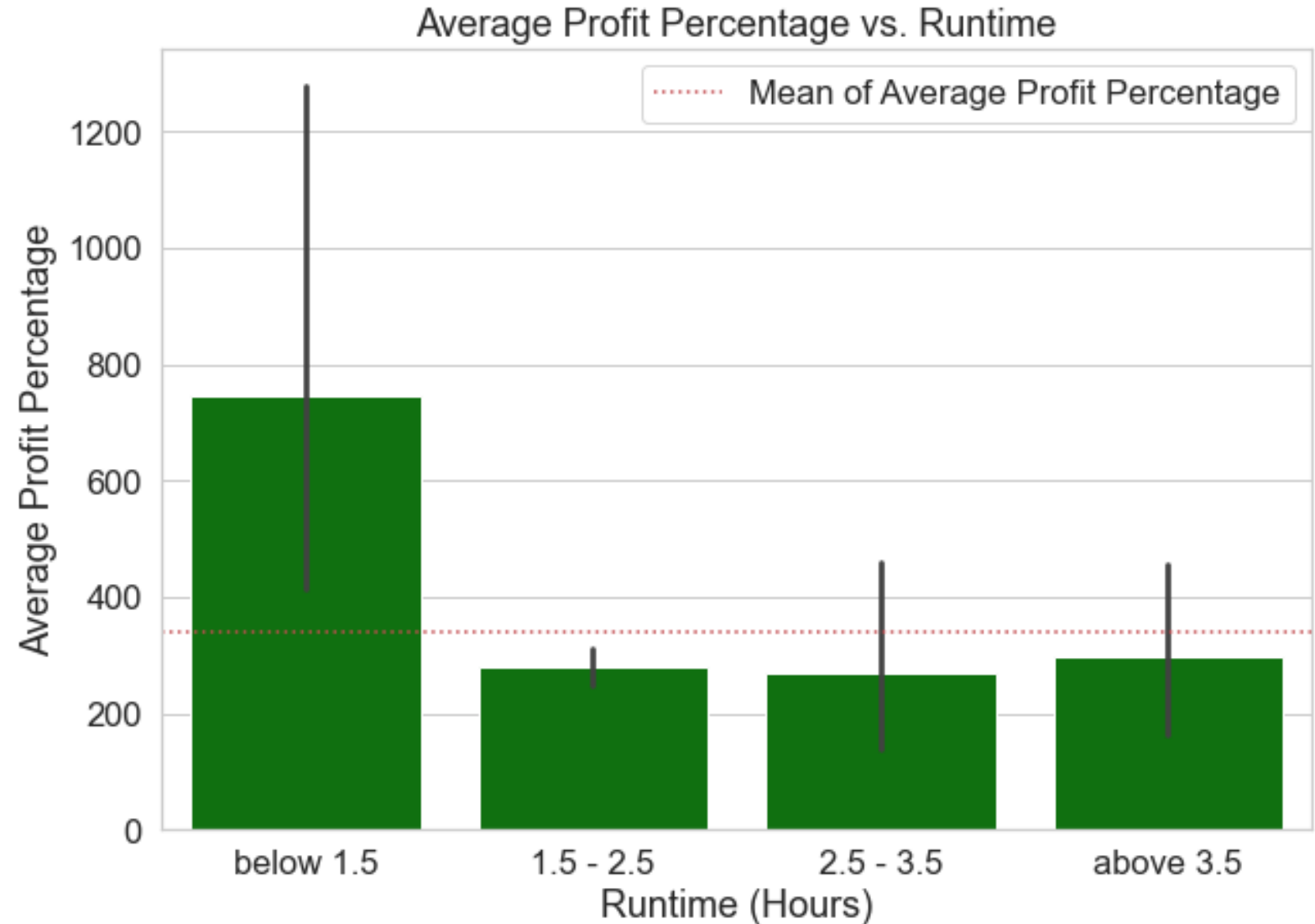
Best Runtime by Average Profit

Variables:

- Runtime (hours)
- Average Profit Percentage

Conclusion:

- Below 1.5 hours has the highest average profit percentage.



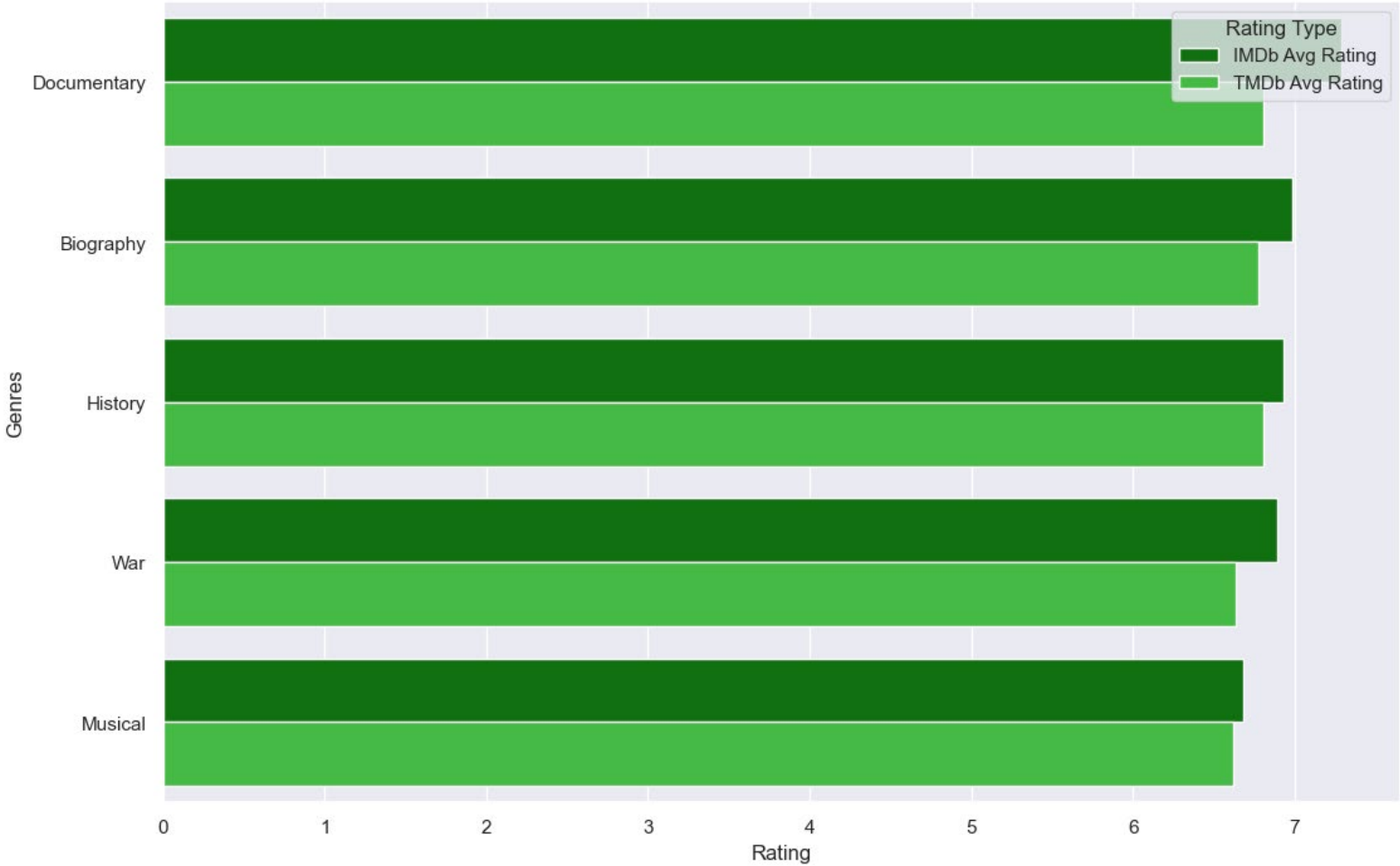
Genres

Highest Performing Genres Based on Ratings

Ratings collected from two independent movie databases show that nonfiction films are typically rated the highest out of all genres

Top 5:

- 1. Documentaries
- 2. Biographies
- 3. History
- 4. War
- 5. Musical

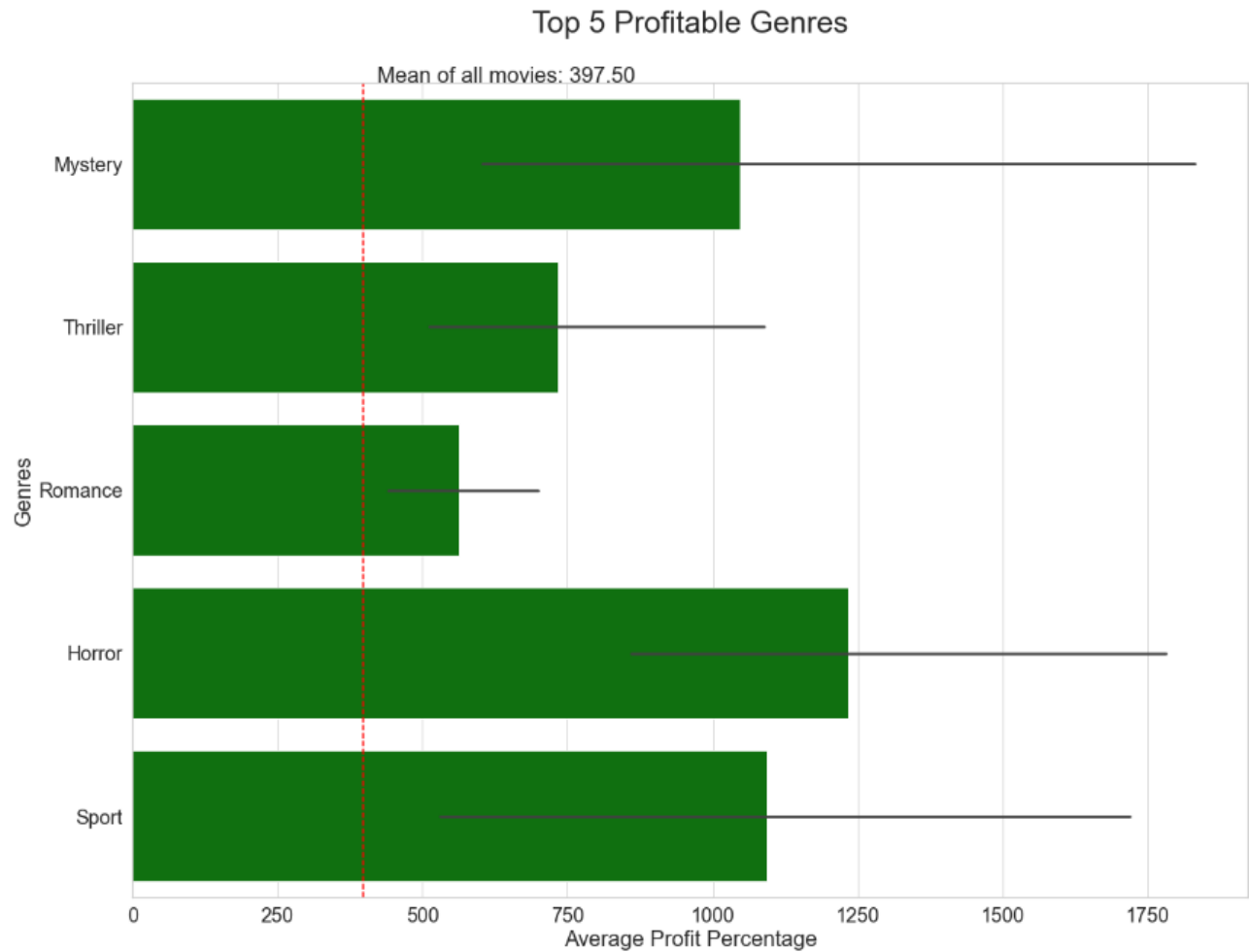


Genres

Highest Performing Genres Based on Profit Percentage

Data analysis reveals that scary, action-packed films will typically generate significantly more revenue compared to other genres

- Top 5:
- 1. Horror
 - 2. Mystery
 - 3. Sport
 - 4. Thriller
 - 5. Romance



Statistically Higher Profit Percentage Genres:

Horror, Mystery, Sport, Thriller, and Romance films have significantly higher average profits

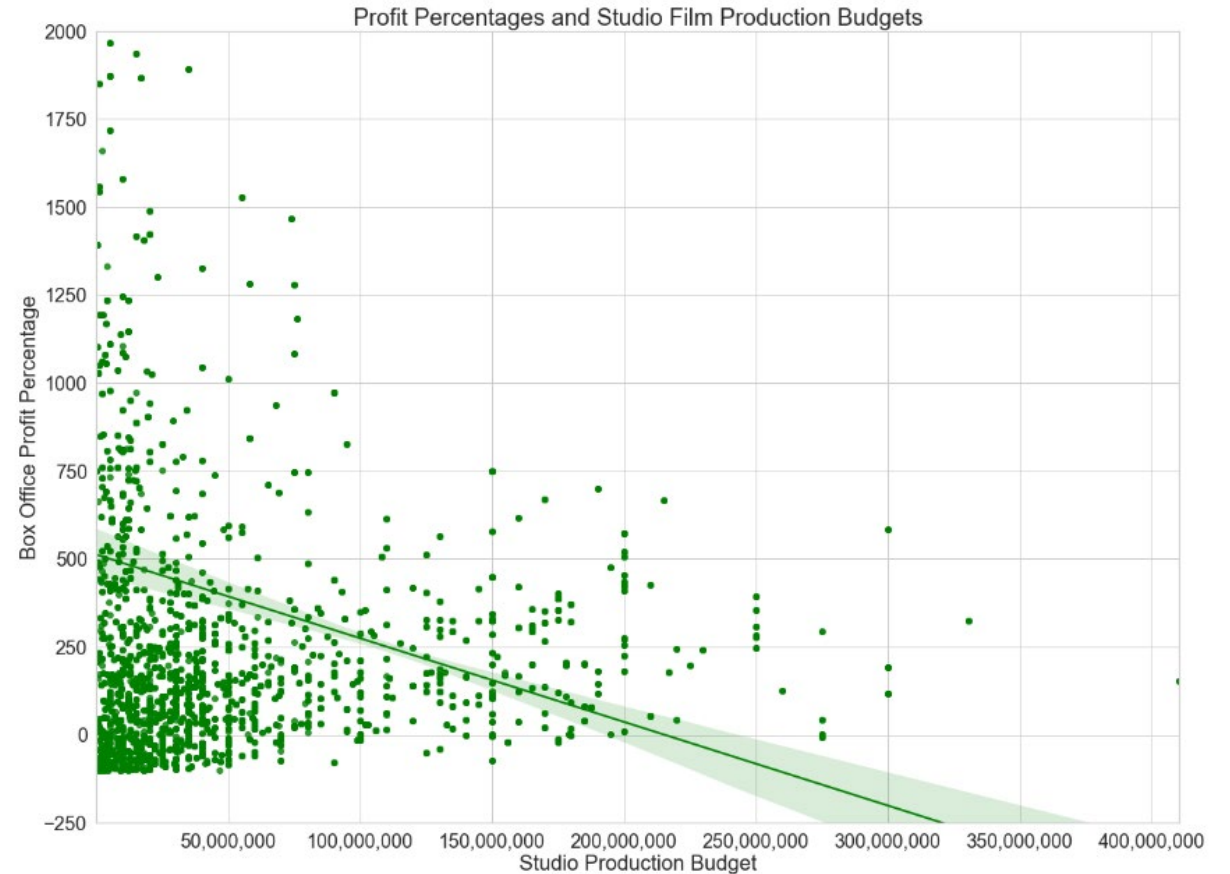
To find statistical differences 1 sample T-Tests were taken to determine if these genres average profit percentage were statistically higher than general films

Population Profit Average:	397.5%	
Horror Profit Average:	1233.1% (p<0.001)	Confidence Interval: -100% - 7744.7%
Mystery Profit Average:	1047.7% (p<0.001)	Confidence Interval: -100% - 8414.8%
Sport Profit Average:	1093.1% (p<0.05)	Confidence Interval: -100% - 5243.5%
Thriller Profit Average:	733.7% (p<0.05)	Confidence Interval: -100% - 5855.7%
Romance Profit Average:	566.8% (p<0.05)	Confidence Interval: -100% - 2525.8%

Budget

Production Budget's Relationship with Profit Percentage

- The Profit Percentages of movies have a moderately negative relationship with Studio Production Budgets
- Lower budgeted films tend to have higher profit margins
- Higher Budgets do not guarantee film profitability
- Lower budgets allow for the possibility of box office flops to be less financially painful



Summary of Recommendations



RUNTIMES

High average ratings can be seen in movies with a long runtime of:

- 2.5 - 3.5 hours

High average profits can be seen in movies with a short runtime of:

- Below 1.5 hours



GENRES

High ratings can be seen in movies with genres:

- Documentary
- Biography
- History

Higher average profit margins can be seen in movies with genres:

- Horror
- Mystery
- Sports



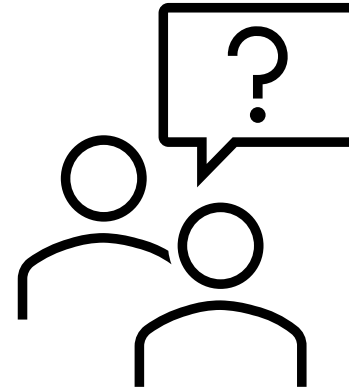
BUDGET

For high ratings, we recommend a higher budget since high ratings correlate to long runtime, which correlates to higher budgets.

For high profits, we recommend a lower budget since high profits correlate to short runtime, which correlates to a lower budget.



Thank You!
Questions?



- Jack Pacheco: [Jack Pacheco | LinkedIn](#)
- Graham Costa: [Graham Costa | LinkedIn](#)
- Uma Sethuraman: [Uma Sethuraman | LinkedIn](#)
- Jacky Rivera: [Jacky Rivera | LinkedIn](#)
- Erin Lee: [Erin Lee | LinkedIn](#)