Microsoft Studio

Where to start?

Summary

Microsoft is entering the world of movie production. In this diversification, our initial findings indicate that for the most profit associated with least risk, Microsoft should start with an animation film with a runtime between 90 and 105 minutes and expect a budget between 10 to 15 million dollars. Further studies are needed as the studio ramps up production with other movies as well as to directors, writers, and how to target streaming versus theatrical release.

Outline

- Business Problem
- Data
- Methods
- Results
- Conclusion

Business Problem- Two Priorities

1. Make Money - What type of movie? How long? What's the budget?
2. Decrease risk - What type, length, budget has the lowest associated downside?

Data

We investigated data from IMDB and Rotten Tomatoes from these sites:

- *imdb_title_basics_csv_gz* - has genres, runtime minutes, and title
- *bom_movie_gross_csv_gz* - has the domestic and foreign gross, and title
- *tn.movie_budgets.csv.gz* - has the budget, and title

to explore:

- **Production Budget**
- **Worldwide Gross**
- **Profit**
- **Gross to Cost Ratio**

We correlated these factors against both **genre** and **runtime minutes** to determine which influenced **profit** and **Gross to cost ratio** the most.

Methods

We began exploring the data provided by IMDB and Rotten Tomatoes, and checked factors that could influence the overall profit of a movie. Although directors and writers can be a huge influence, due to the amount of time budgeted for this project, we stuck to more localized factors of runtime, genre, budget, and worldwide gross.

We combined the data from three dataframes from IMDB and Rotten Tomatoes, excluded one movie with no foreign or worldwide gross, and broke each movie down into each genre tag. So for example, a movie that was an action, adventure would give us data for each genre action, and adventure.
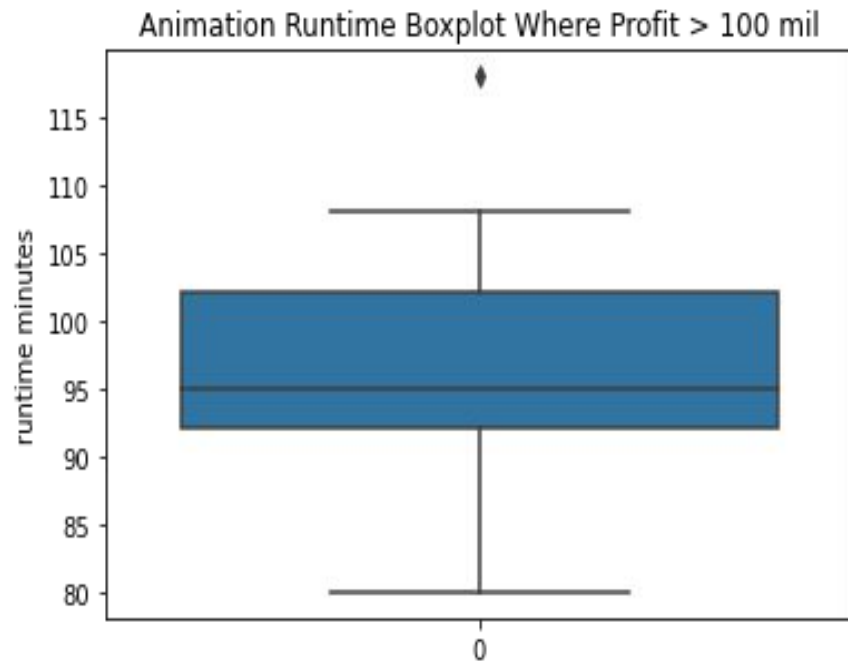
Results - Medians
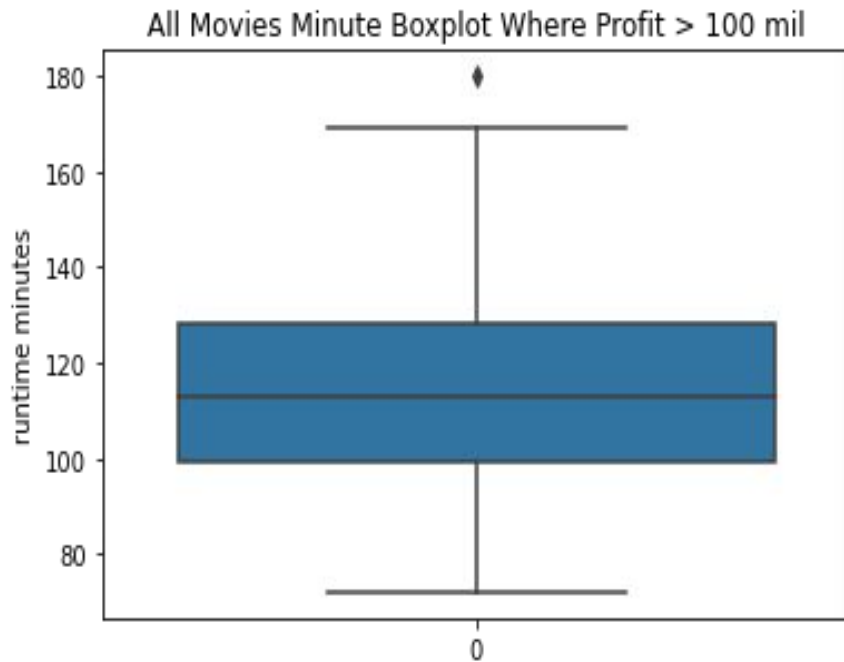

Median Gross to Cost Ratio

Median Profit by Genre
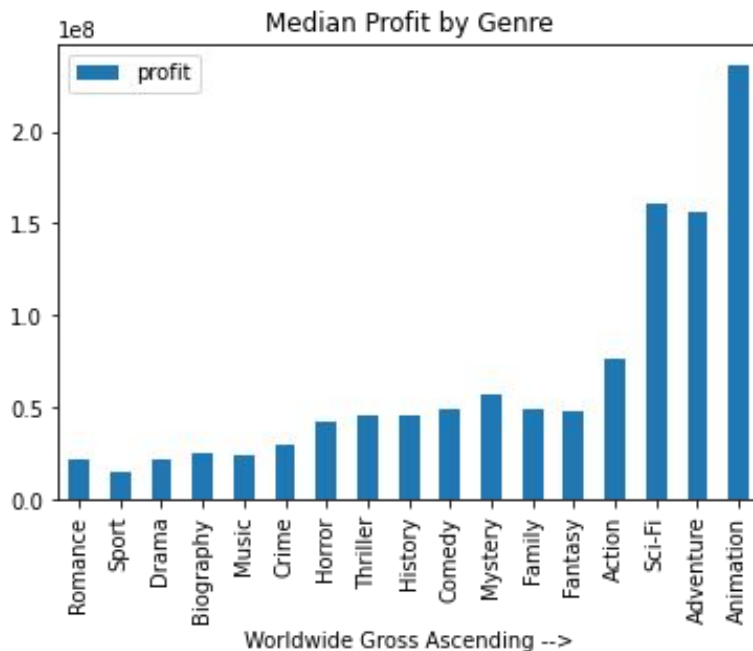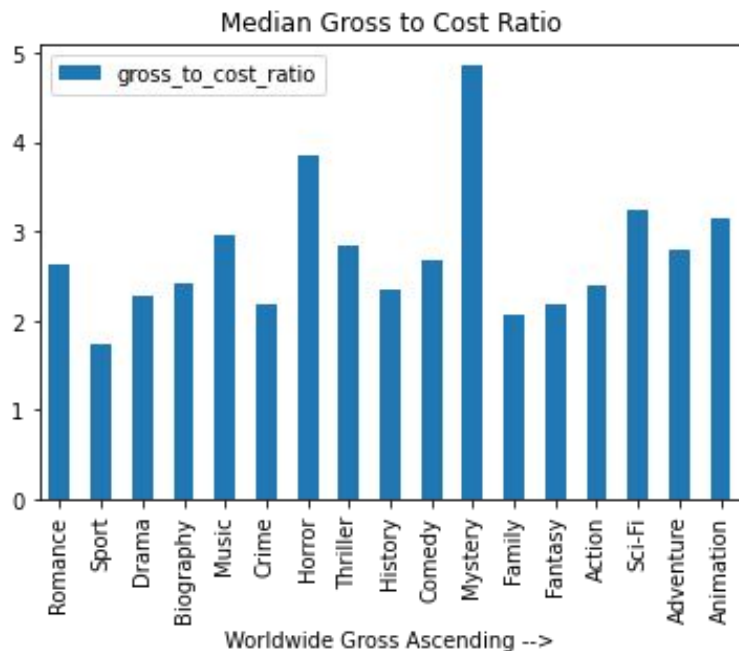
Take a look at the top 5 bars for each graph here. In the top 5 for both graphs is Animation with the highest median profit.

Results - Less Risky

Min Gross to Cost Ratio
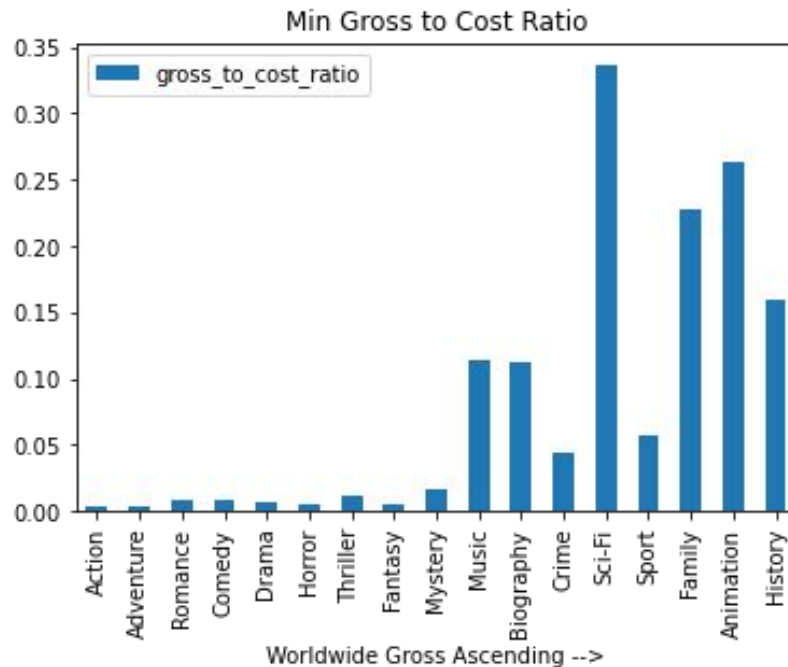
Reduce risk with Sci-Fi or Animation because even at their worst, they lose only 65-70% of their money.

Methods - Runtime

All Movies Minute Boxplot Where Profit > 100 mil

Animation Runtime Boxplot Where Profit > 100 mil

For all movies, profit > 100 mil was made for 75% of films that had runtimes between 100 and 130 minutes. But for animation, 75% of films with the same profit had runtimes between 93 and 103 minutes.

Results

Animation carries the highest median profit by genre, the fourth highest median gross-to-cost ratio, and the second lowest median loss of money in the case of a flop. Sci-fi is respectively third, second, and first in those aforementioned categories.

We determined a runtime for the Animation should be between 93 and 103 minutes because 75% of Animation movies earning more than 100 million profit fall in that range.

Results

We need to do more exploration to be confident in our results. Where are these animation movies popular, and where is Microsoft looking to release this movie? Are there certain writers, directors, or producers that are associated with these highly profitable anime movies?

We do feel confident to say that the animation movie is a relatively safe foree into the movie production business and is likely to turn a profit.

- (instructor note) - In writing this, I'm realizing we could go back and create a dataframe with the % of profitable movies by genre, although the median by genre provides a similar statistic.

Conclusion- Recommendation

For Microsoft Studios with the current information we recommend the following:

- **Animation movie**
- **93-103 minutes**
- **Budget 10-15 million,** but don't be scared off by a bigger budget because larger budgets are most correlated to higher profits.

Conclusion- Limitations and Further Study

Limiting factors in our results included throwing out Westerns, War, Documentaries, and Musicals with too few data points. We have a small sample size of movies within an approximate 10 year team period and they may suffer from recency bias. We did not connect success (profit) with directors, authors, or crew, and we could create a short list of those to make a determination of whom to hire. Most importantly however, we did not look at the effect that streaming services have had on the industry and whether Microsoft should target Theater Releases, or Streaming Releases.

- Lack of data on Westerns, War, Documentaries, and Musicals
- Small overall sample size of movies within a approximately 10 year period.
- Success is not correlated yet with Directors, Authors, or Crew
- Account for Theater vs. Streaming release.

Conclusion- Further Study

Suggestions for our future exploration include:

1. Expand our data to more than the most recent 10 years.
2. Do a similar data analysis but separate movies by streaming and by theater release.
3. Connect writers, producers, and directors to our data and analyze the importance of those people into our selection.

Thank you

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