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Summary

- Statistical analysis of movie data from Box Office Mojo, The Numbers, and IMDB reveals three areas Computing Vision should focus on to create films that earn a high box-office gross.
 - Genre of film produced
 - Production Budget
 - Domestic vs. international marketing

Agenda

1 | Business Understanding

2 | Data

3 | Statistical Methods

4 | Recommendations

5 | Next Steps & Conclusion



Business Understanding

- Establish a new movie studio
- Breaking into an established industry
- Needs insight on which types of films are currently doing best at the box office

Data Understanding

- Box Office Mojo
 - Contains information about domestic gross, foreign gross, and movie studio
 - Represented as a .csv file with ~ 39% missing data in the foreign gross category
- The Numbers
 - Contains information about production budget and worldwide gross
 - Represented as a .csv file with ~ 6% missing data in worldwide gross
- IMDB
 - Contains information about movie genres, average ratings, and votes
 - Represented as tables in a SQL database
- Only considered movies released after 2010

High Priority Metrics



01

Highest-rated genres

02

Budget to box office ratio

03

Highest-grossing studios & their movies

Our Analysis Based Recommendations



RECOMMENDATION #1

Produce a movie in the animation category with a possible comedy sub-genre.

RECOMMENDATION #2

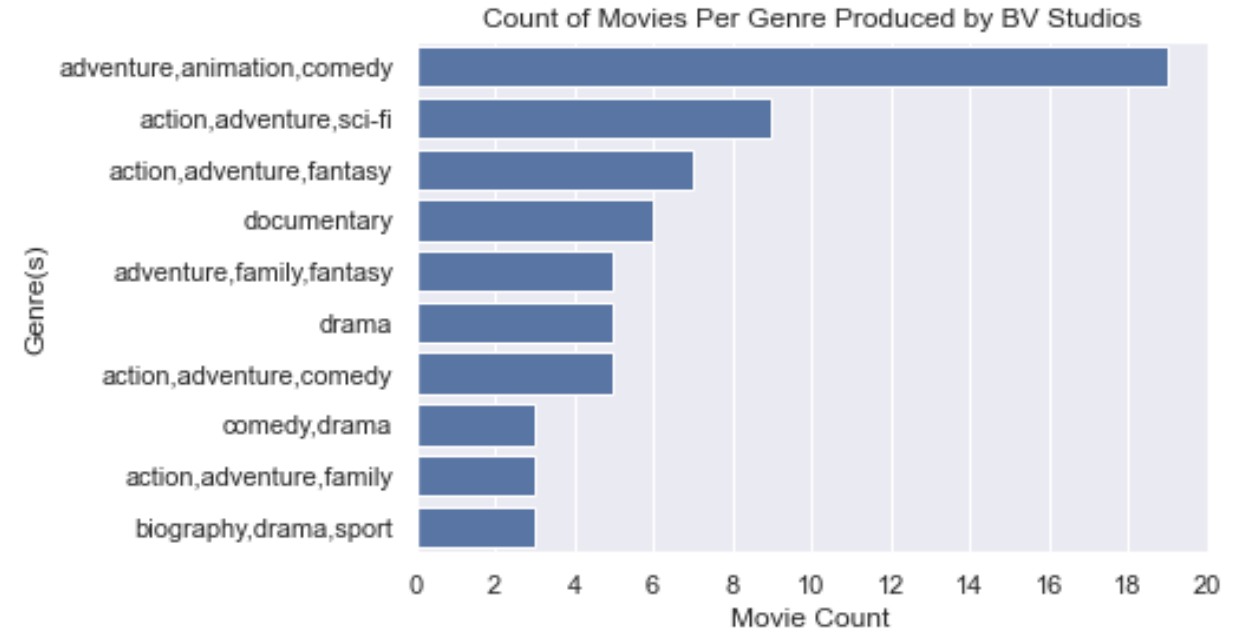
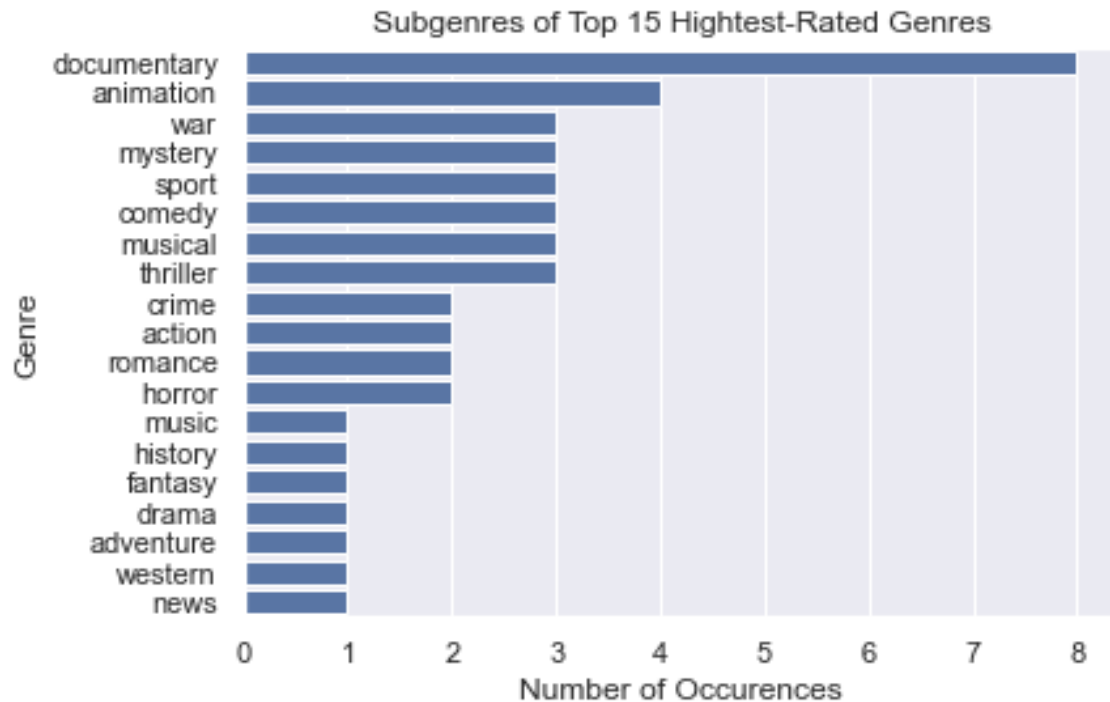
Allocate \$80 million towards movie production.

RECOMMENDATION #3

Allocate more marketing effort towards international audiences.

Recommendation 1

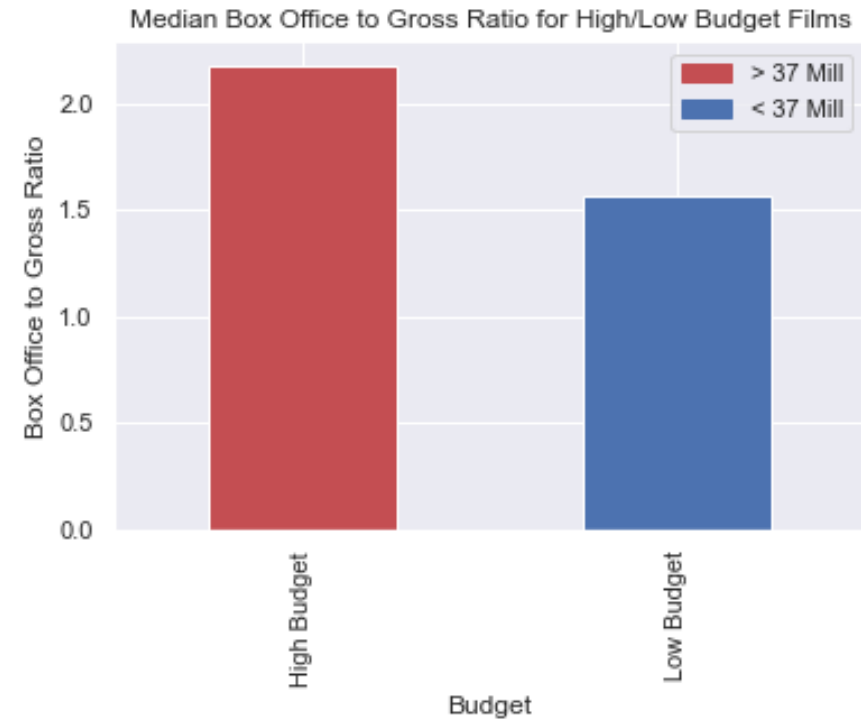
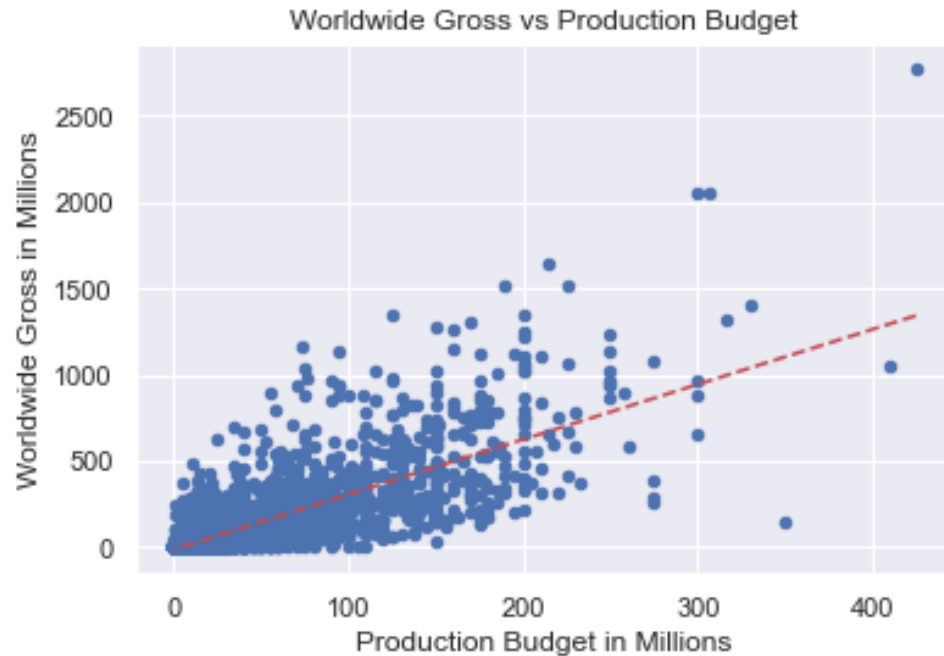
Produce a movie in the animation category.



- Documentary and animation genres were the top 2 highest-rated genres.
- We compared the highest-rated genres to the genres of movies produced by Disney/Pixar Studios (the highest-grossing movie production studio).
- Animation performed well relative to both datasets regarding rating and box-office earnings.

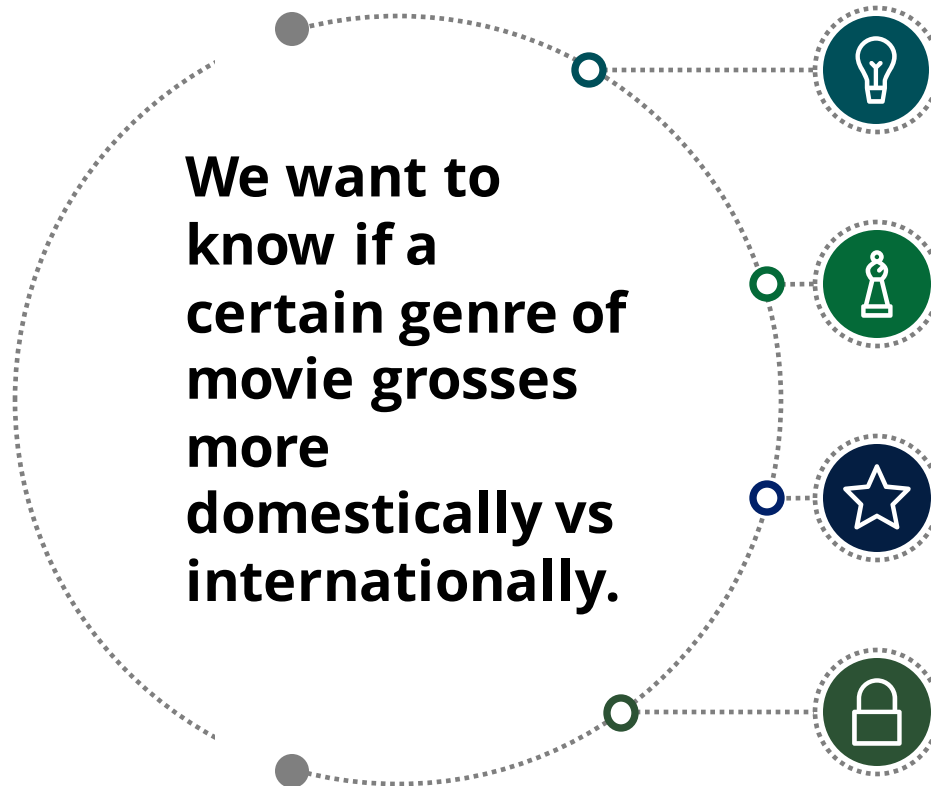
Recommendation 2

Allocate \$80 million towards movie production.



- There is a positive correlation of .78 between a high production budget and world-wide gross.
- High budget movies tend to produce higher positive returns, although there are outliers to be aware of.

Hypothesis Testing



Type of Test

We will perform a one-tailed, independent two sample t-test

Null Hypothesis

The animation genre would gross the same amount internationally and domestically

Alternative Hypothesis

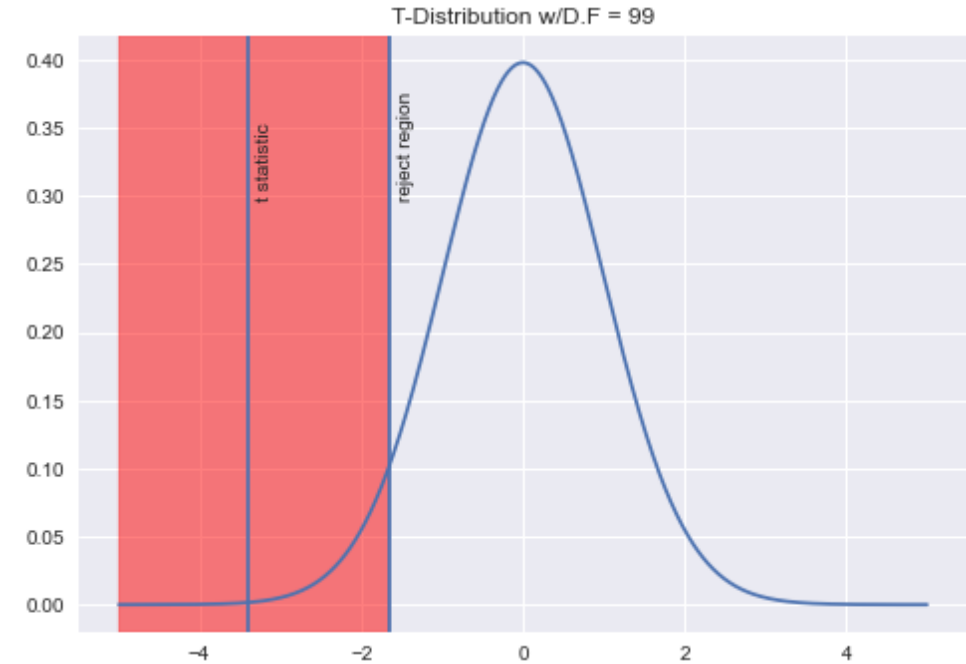
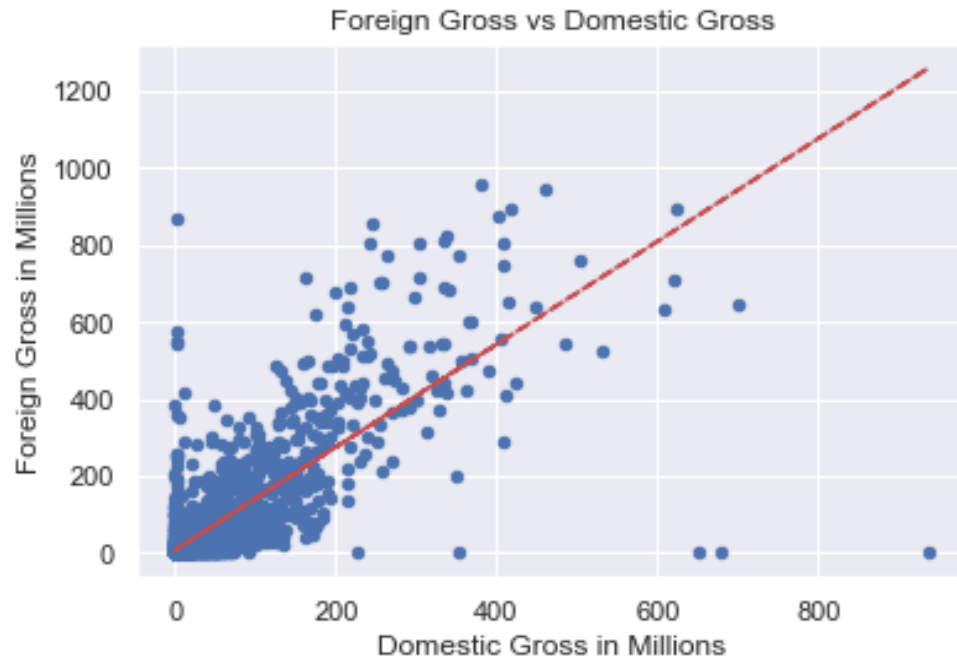
The animation genre would gross higher internationally than domestically

How would this relate to the client/business?

Based on the results of the test we can determine where to spend the marketing budget for the movie as part of our recommendation

Recommendation 3

Allocate more marketing effort towards international audiences.



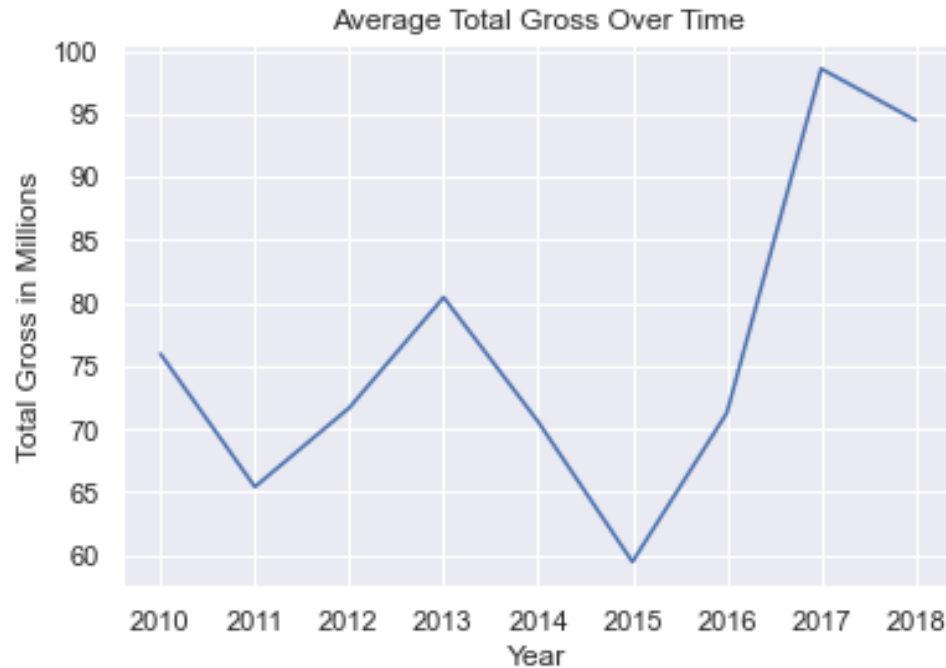
- We can see that there is a slight positive correlation between foreign and domestic gross, but there are a lot of points that contradict this
- The mean of the foreign sample was 167.7 million and the mean of the domestic sample was 89.1 million giving a difference of 78.6 million
- We conclude that the foreign gross comes from a distribution with a mean greater than the domestic distribution.

Conclusion

- Recommendations
 - Produce a movie in the animation category with a possible comedy sub-genre.
 - Allocate \$80 million towards movie production.
 - Allocate more marketing effort towards international audiences.
- Next steps
 - Conduct debrief regarding information presented.
 - Explore unused datasets.
 - Collect more-recent movie rating and box office data.
 - Continue to conduct analysis regarding how much money to spend domestically vs internationally.
- Questions

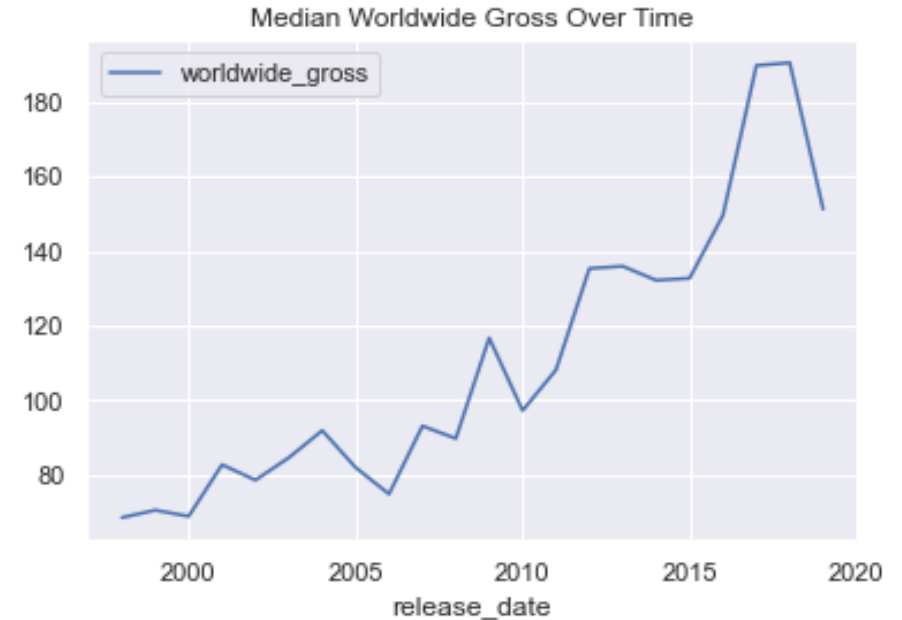
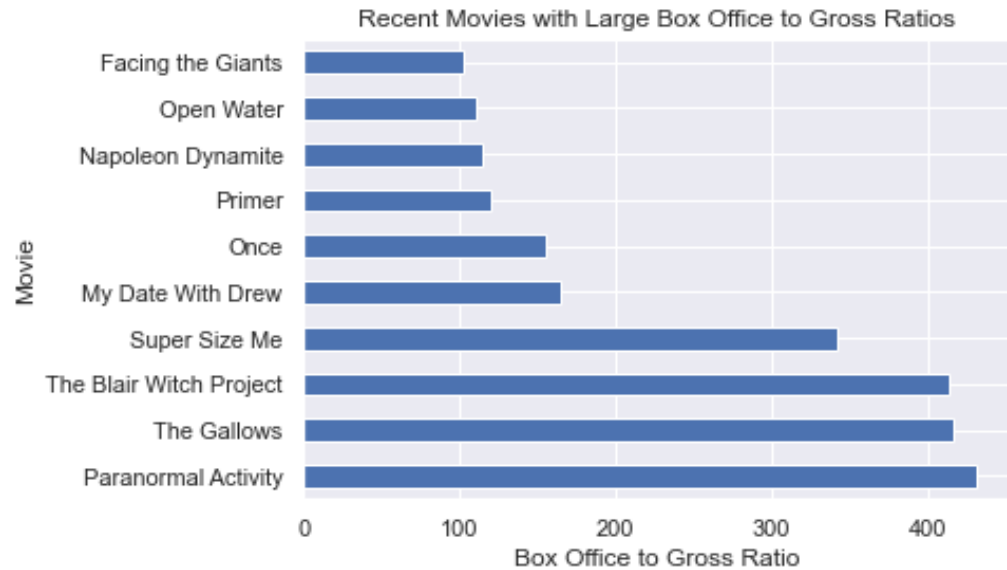
Appendix

Mojo Box Office Dataset



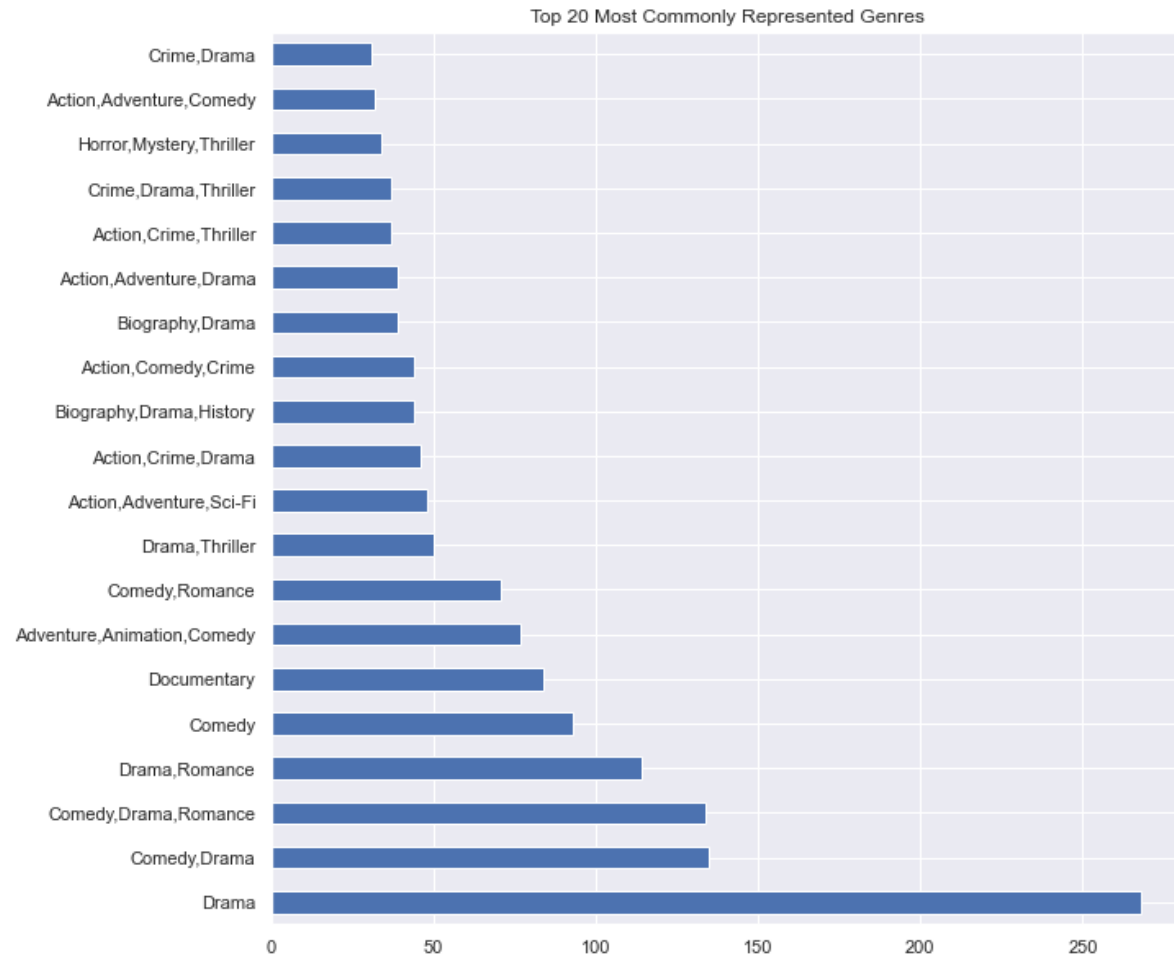
- The years 2017 & 2018 saw the highest average total gross
- Best performing studio: **Disney/Pixar**

The Numbers Dataset



- From 2010 onwards, the median worldwide gross increases more steeply than before
- Lower budget movies have higher average Box Office to Gross ratios than high budget movies
- Higher budget movies achieve high Box Office to Gross ratios more consistently

IMDB Dataset



- Data was filtered to include only genres that had a total of 62 votes, which was the 25th percentile
- The movie that had the highest average rating with above average votes was Inception

Additional visualizations

