

# AN ANALYSIS OF THEATRICAL MOVIE RELEASES:

A SUMMARY OF PREDICTORS IN THE  
PRODUCTION OF MOVIES WITH HIGH  
RETURN ON INVESTMENT



# Presentation Roadmap

- Outline the business objective
- Describe the data source and preparation methods
- Summarize results and discuss interpretations
- Provide actionable insights

# Business Objective

- Enable Microsoft to join the media industry as a production company and grow shareholder value
- Global Box Office Revenue hit a new record in 2019 at \$42.5 billion and has been growing every year
- Netflix is reported to invest \$15 billion on new content; Prime Video and Apple TV+ at \$6 billion; Hulu, Disney+ and HBO Max are all coming in around \$3 billion
- Determine features of successful theatrical movie releases to guide Microsoft in producing films that will generate profit

# Data Preparation

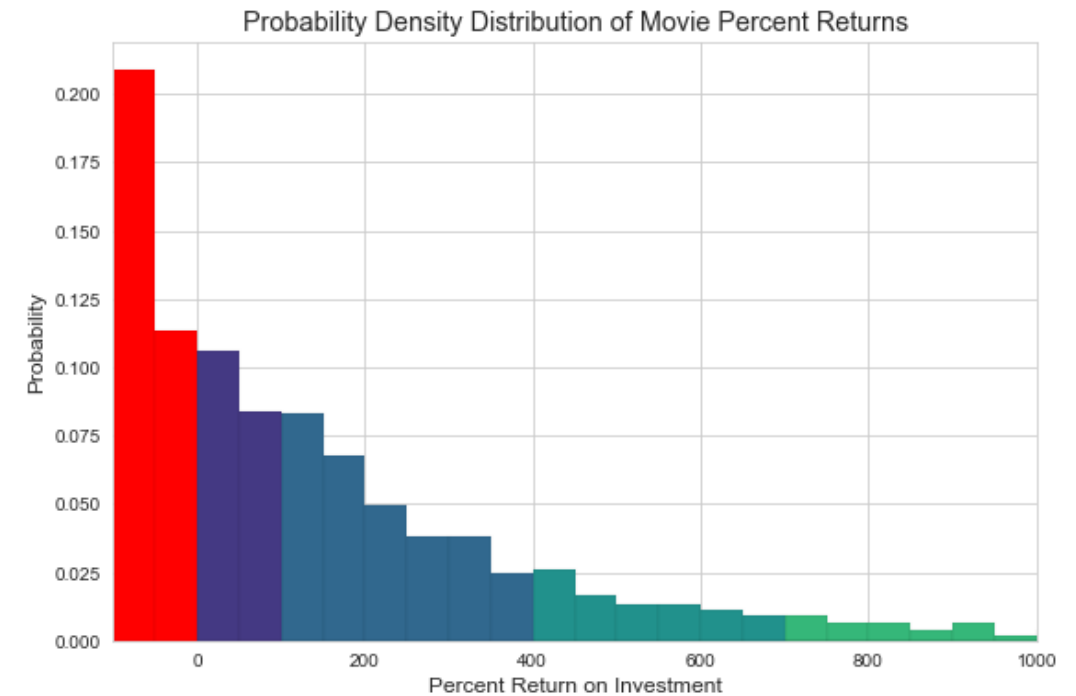
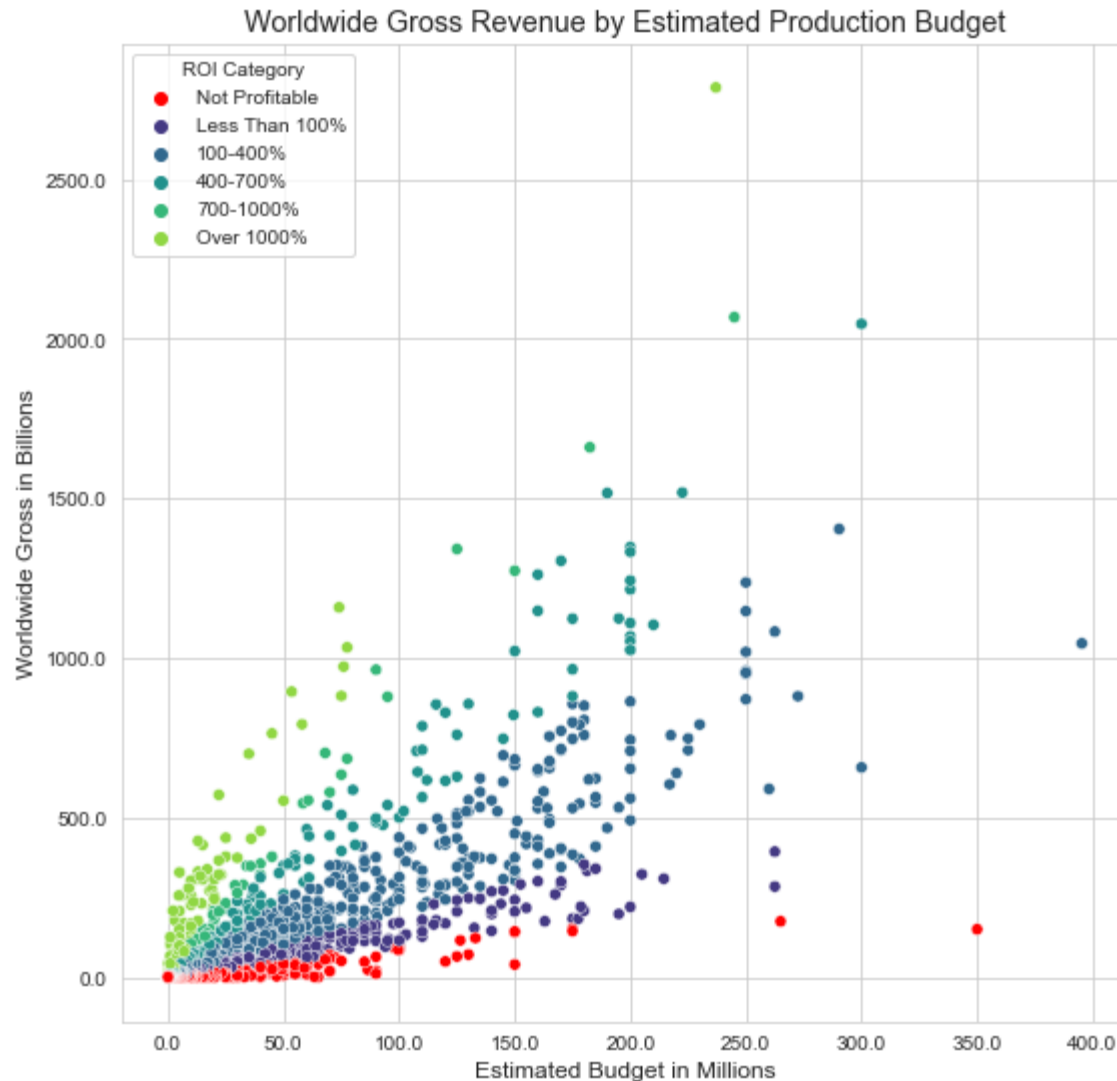
- The data used in analysis comes from The Numbers (TN), The Movie Database (TMDb), and the Internet Movie Database (IMDb)
- Being interested in profitable movies, as many records as possible containing budget and revenue were collected, but to determine features of successful films, we need other descriptive or categorical attributes as well

tconst	Title	Genres	runtime_ minutes	vote_ average	vote_count	budget_est	worldwide_ gross	release_ week_day	release_ day	release_ month	release_ year
tt0892769	How to Train Your Dragon	['Fantasy', 'Adventure', 'Animation', 'Family']	98	8.095082	618909	165000000.0	494874875.5	4	26	3	2010
tt1228705	Iron Man 2	['Adventure', 'Action', 'Science Fiction']	124	6.996308	670058	185000000.0	622544860.0	4	7	5	2010

# Questions for Review

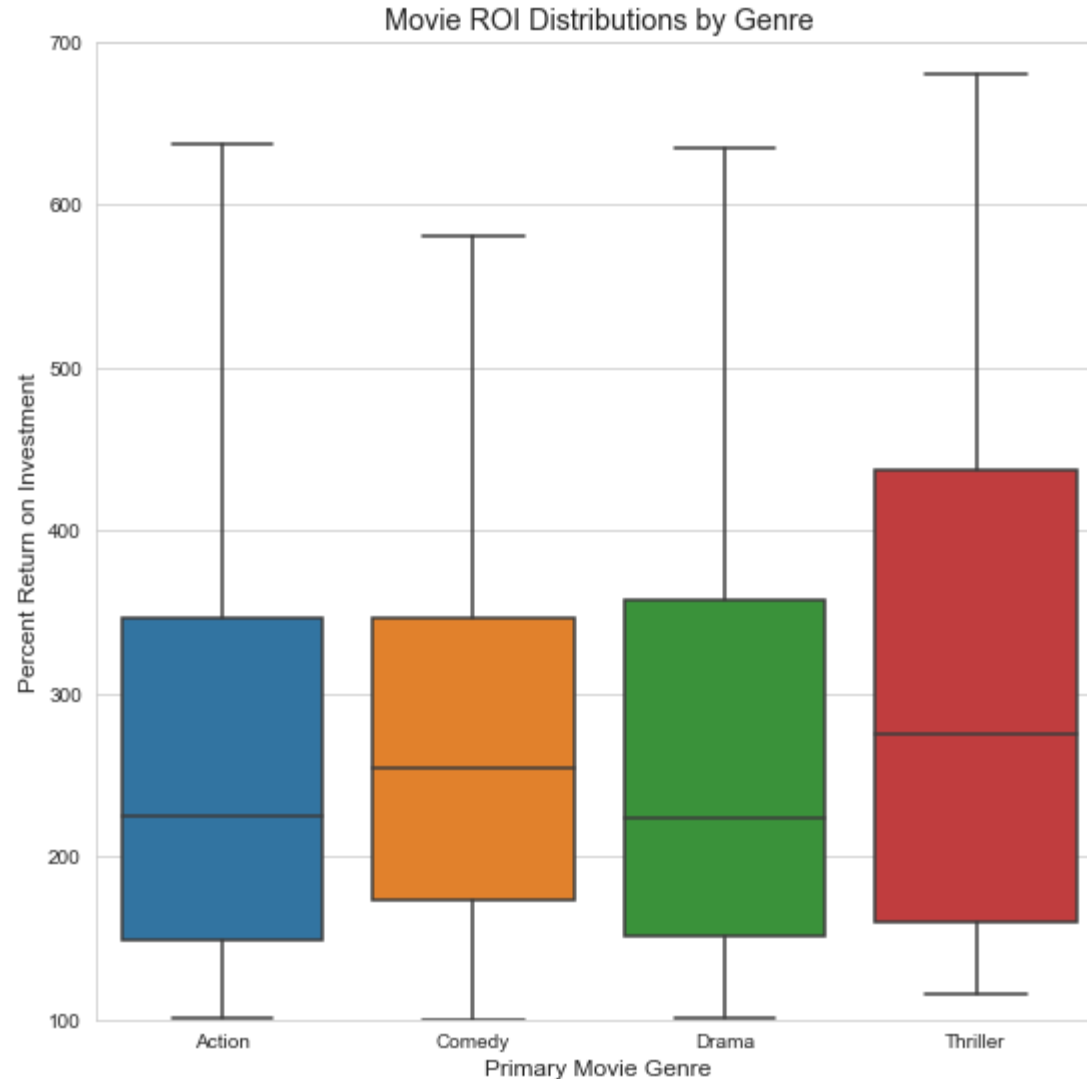
- How much should be spent on production?
- What type of movie is most often high in return on production budget?
- Once the movie is produced, when should it be released?

# What should be spent on production?



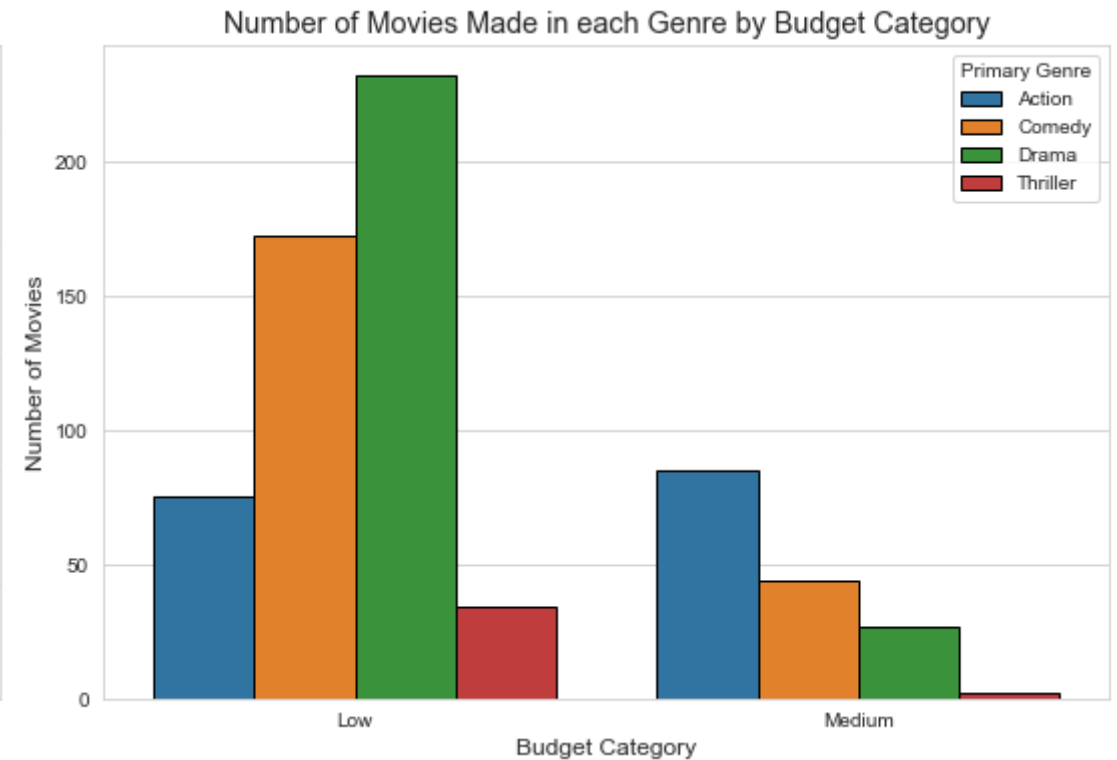
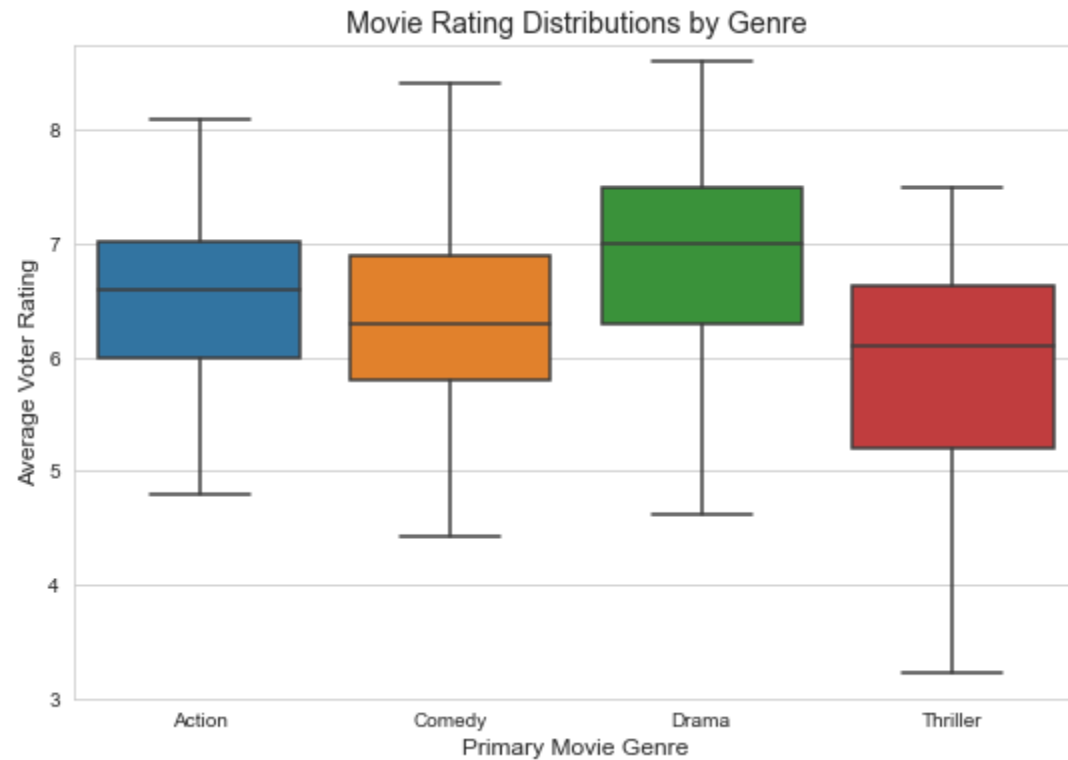
- Movies with exceptional ROI tend to have minimal budget; compare Gross Revenue of higher budget movie with lower ROI
- Movies in the High and Ultra Low budget categories (in addition to outer ROI categories) have been thrown out from here on

# What types of movies produce high returns?



- There are many genres in the movie collection, and some movies have more than one genre attributed
- To be able to more easily look at movies by genre, a new field is defined for each movie called the primary genre
- First a count of all the unique genres in the collection was made. Then, each movie was assigned to one of the four that were already the most popular, if that wasn't already their only attributed genre
- Common examples include Adventure -> Action and Horror -> Thriller

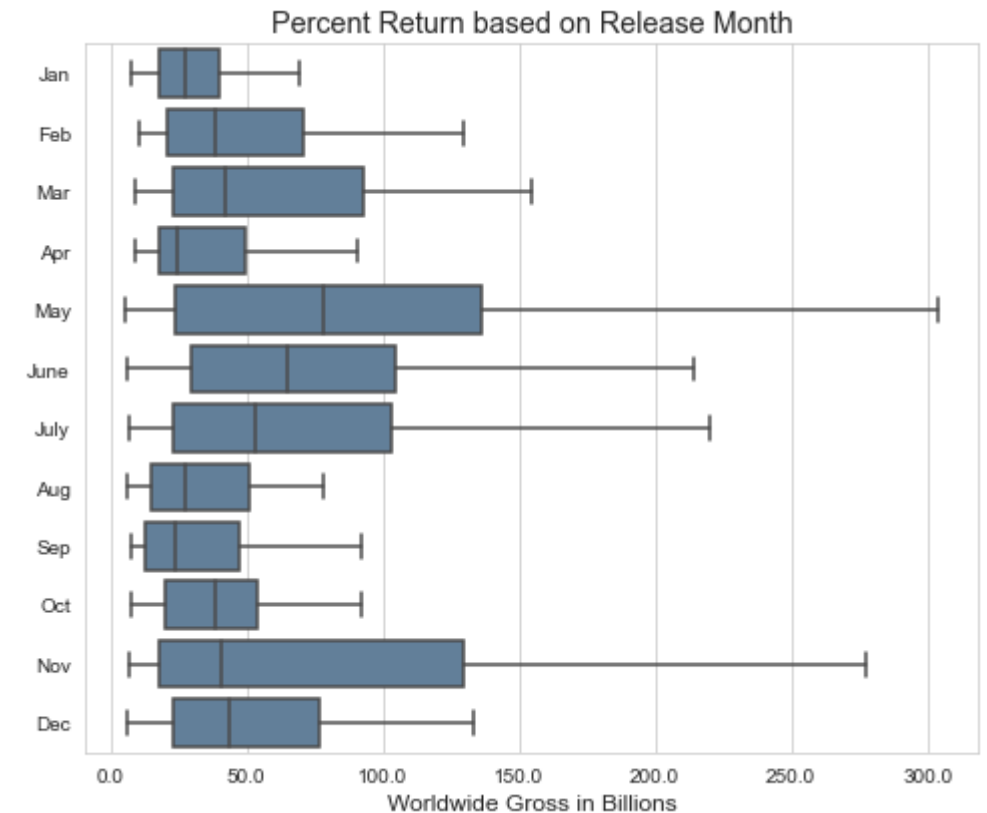
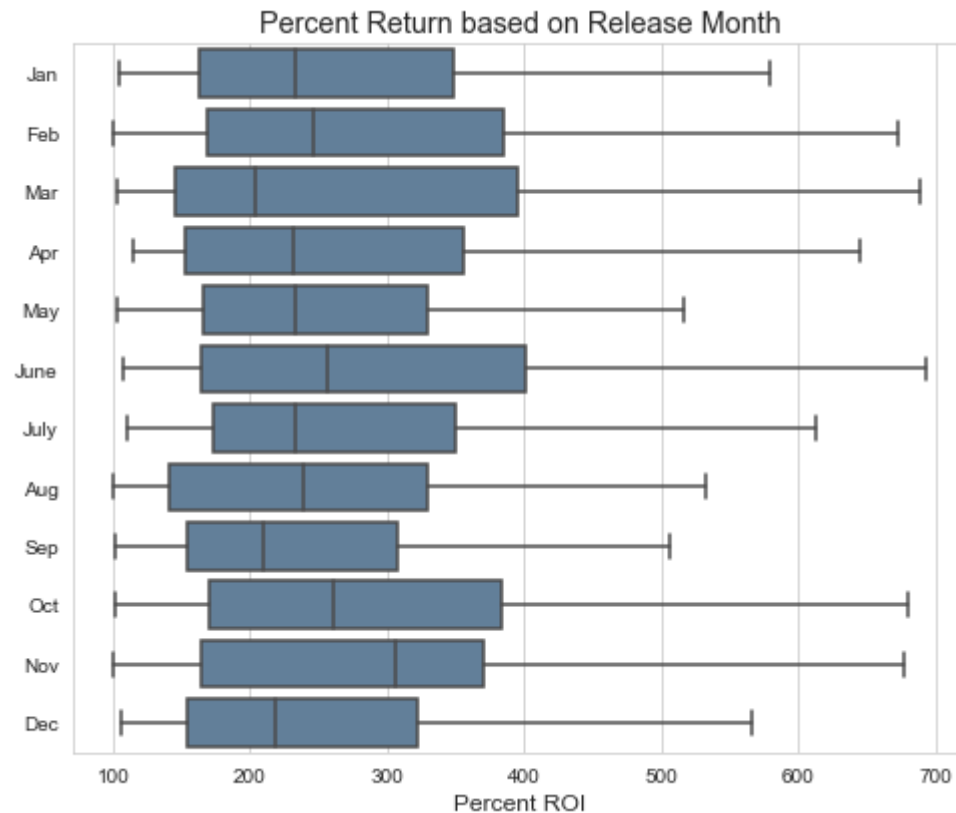
# What types of movies produce high returns?



- While we saw on the last slide thriller wasn't edging out the other categories by much, but we can see here thrillers seem to be produced less and may do well on release independent of viewer reception
- This could indicate an easy niche to break into, getting consistent returns without having to worry about production quality, meaning less can be spent on big name cast and crew members, reducing risk

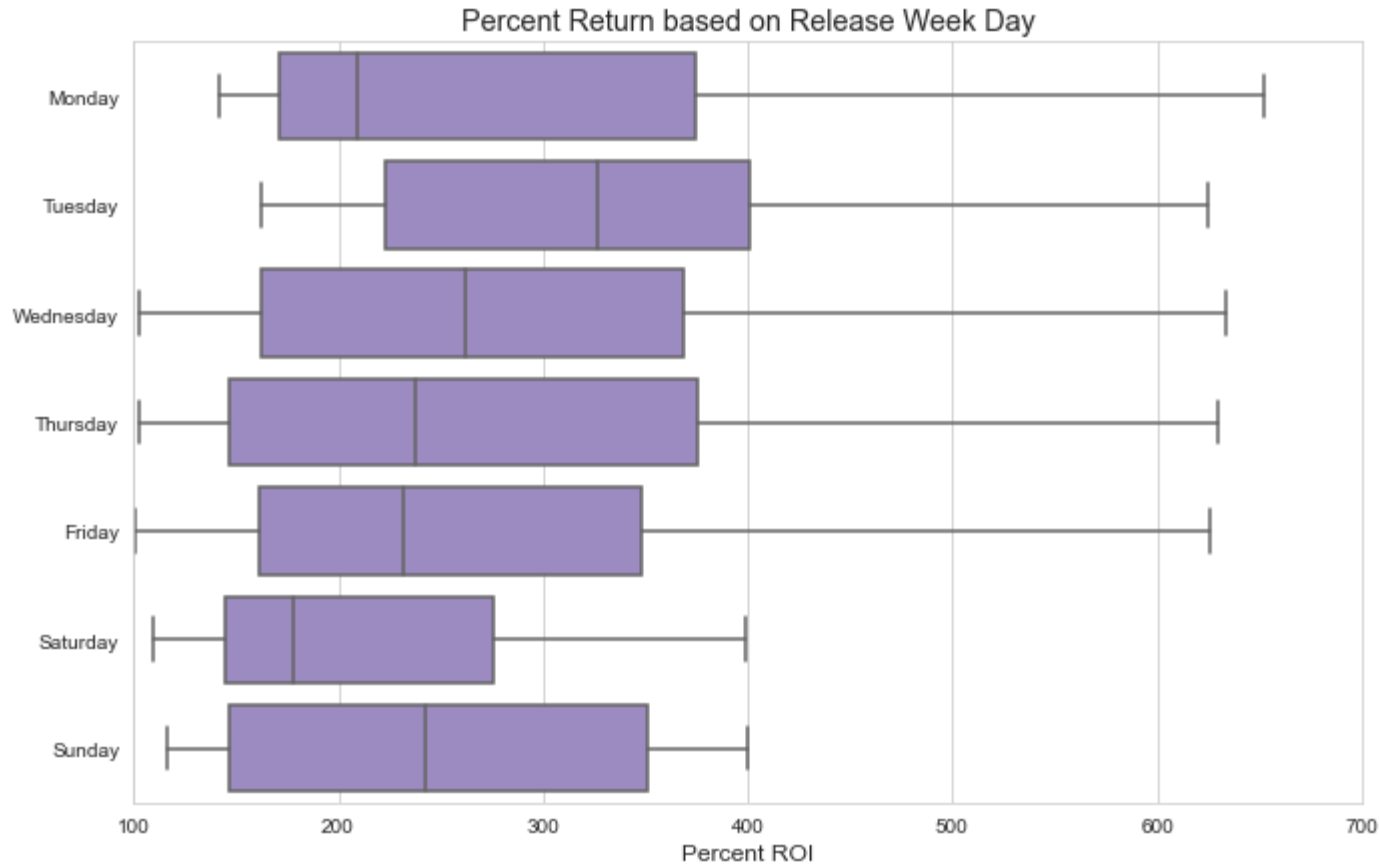


# When should the movie be released?



- Maybe not so convincing to determine release month based on ROI distribution, though when placed side by side with Worldwide Gross, we can see that to give the movie a best chance at solid ROI while increasing the ceiling for gross revenue, the movie should be released either going into summer or in November

# When should the movie be released?



- Tuesday is the strongest performing day of the week in terms of percent returns

# Summary

- In general, spending more on production will increase the return on the original investment, but based on our conclusions, it may only be necessary to spend between \$10 and \$100 million per movie
- Of the different movie genres, Thriller movies are least often produced but tend to yield the highest ROI. Additionally, ROI may be less affected by production quality, decreasing production budget requirements and reducing risk
- To maximize availability on theatrical release, release movies on a Tuesday evening in one of the early summer months

# Future Avenues of Exploration

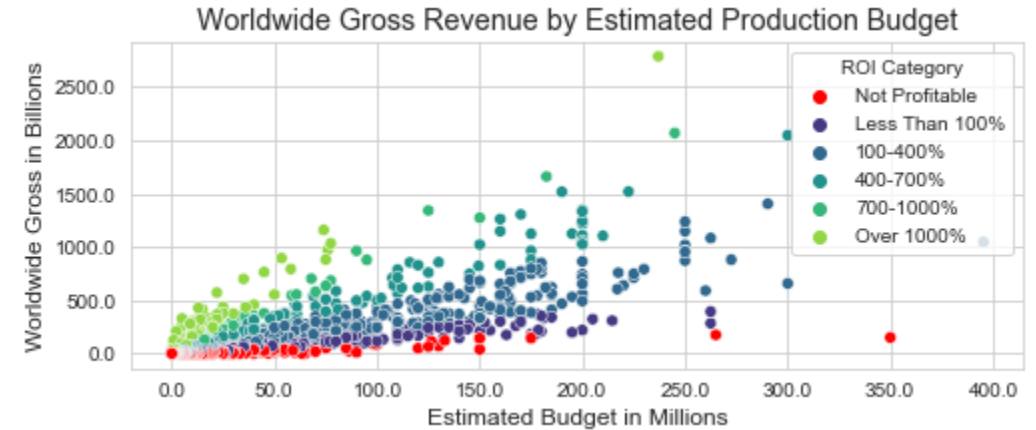
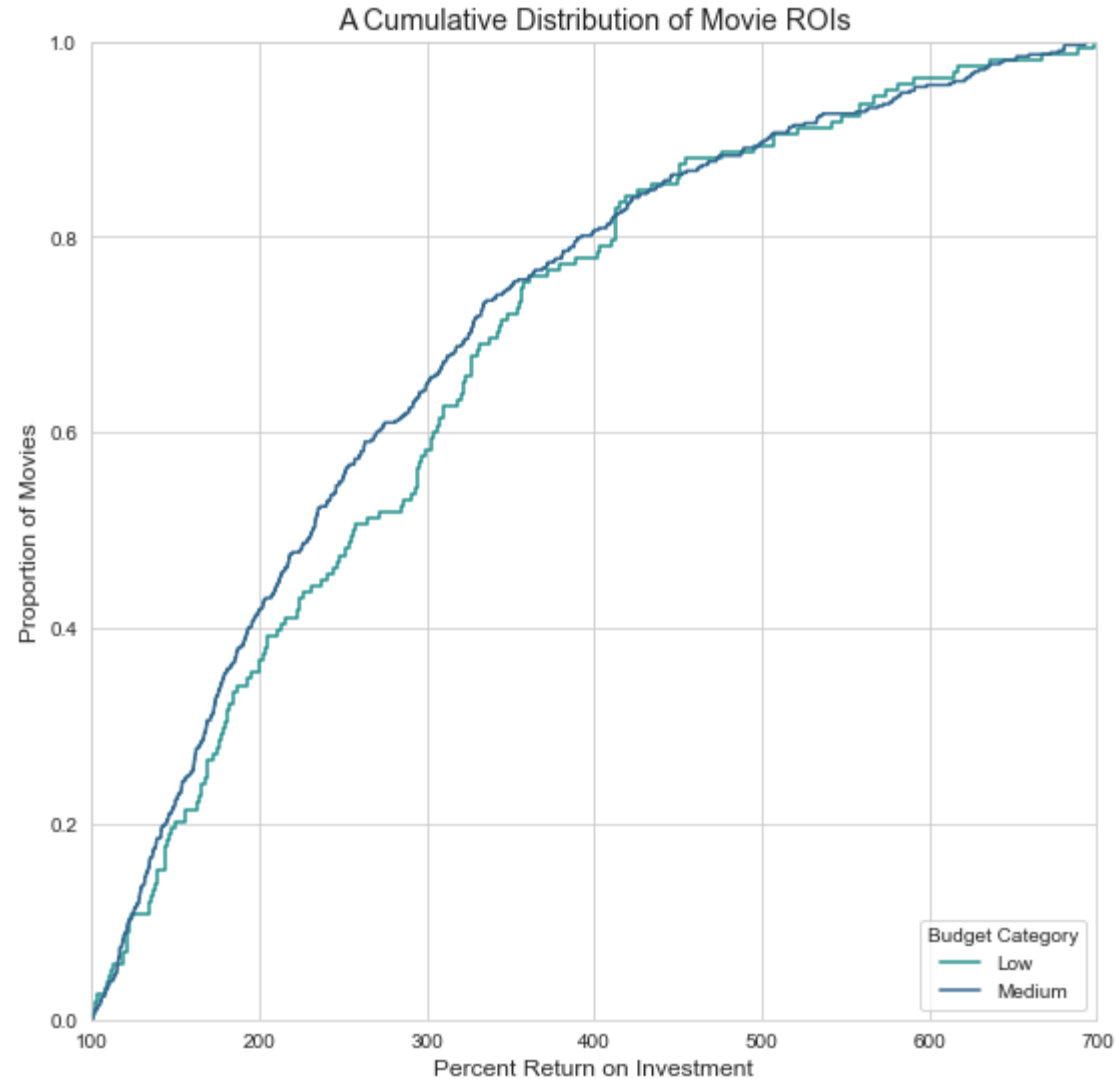
- Production budget and Gross Revenue are far from being the only relevant avenues for outflow and inflow of capital, respectively
- We primarily looked at a subset of our movie collection where we required movies to make a profit (have  $ROI > 0$ ). We can double check that the described features hold true only for profitable movies, increasing our confidence
- We have access to data connecting movie cast and crew to IMDb ID's which we have for every movie in our collection dataset. While for Thrillers it may not be as important, but for other genres or independent of genre it may be that there are a subset of production crews that is a better predictor of high return movies
- As it relates to the first concern, the pandemic, and the rise of streaming services.. Is theatrical release worth it as a new production company with plenty of capital?

# Thank You!

- Questions?
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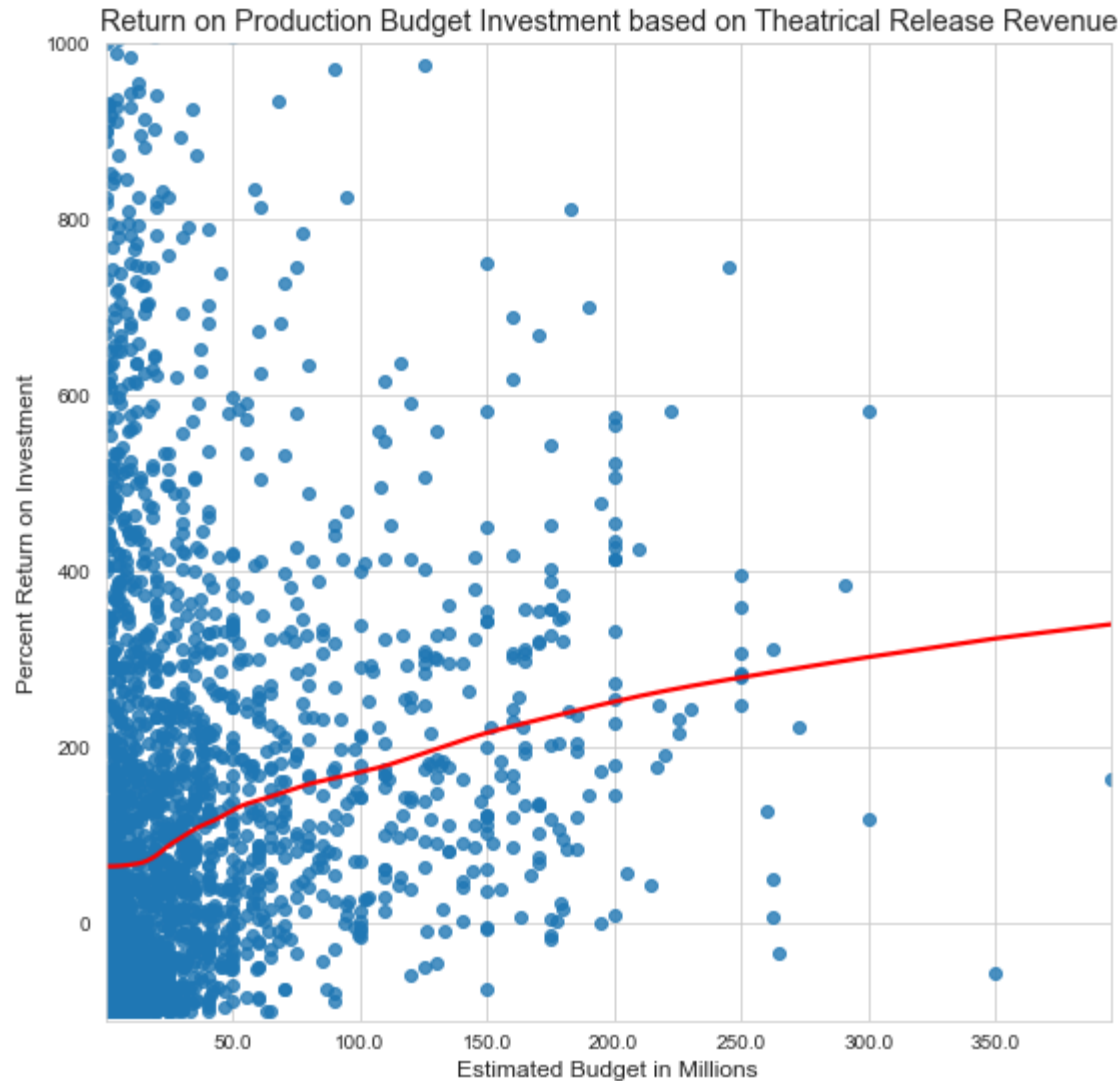
# APPENDIX

# What should be spent on production?



- As in previous plots, can divide data into budget categories like for ROI category
- Define budget: High > 200,000,000; Medium >= 100,000,000; Low >= 10,000,000; Ultra Low < 10,000,000
- Movies in the High and Ultra Low categories (in addition to outer ROI categories) have been thrown out from here on

# What should be spent on production?



- Except for budgets less than ~20mil, return on investment trends upward with increased budget
- Ultra low budget region has very wide spread