

MICROSOFT MOVIE STUDIO

MODULE 1

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Microsoft wants to start a movie studio and they need some analysis conducted to determine what the best business strategy is for them to start this venture. They want more insight about the film industry and what type of movies are the most profitable.

We decided to do an in-depth analysis on the sales trends of the movie industry and came up with three questions to explore in more detail to help shed more light into Microsoft's potential horizontal expansion project.



**WHAT IS THE MOST PROFITABLE
MOVIE GENRE TO EXPLORE?**

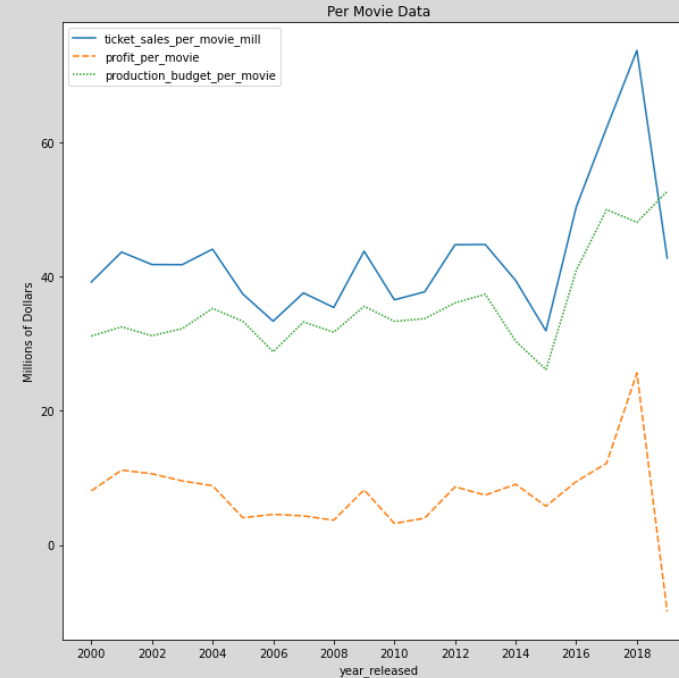
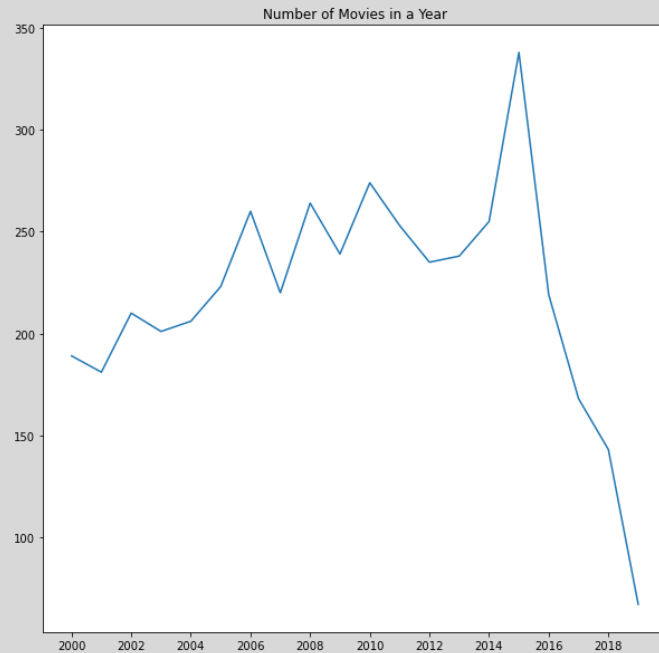


**IS THERE A CORRELATION BETWEEN
RUNTIME, BUDGET, AND SEASON
RELEASED?**



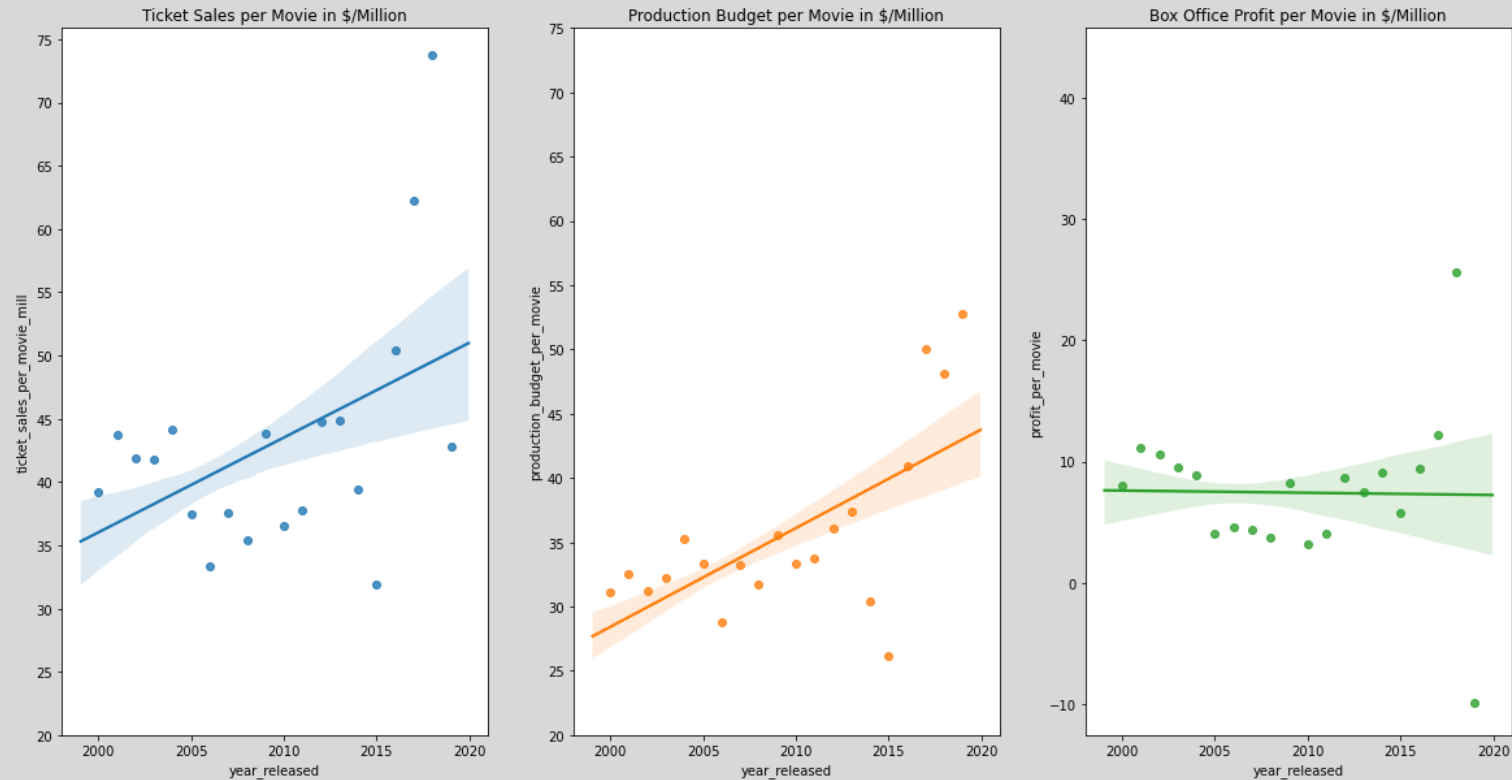
**CAN THE THE FILM INDUSTRY BE A
CONSISTENT PROFIT CENTER?**

Is the demand for movies at the box office increasing over time?



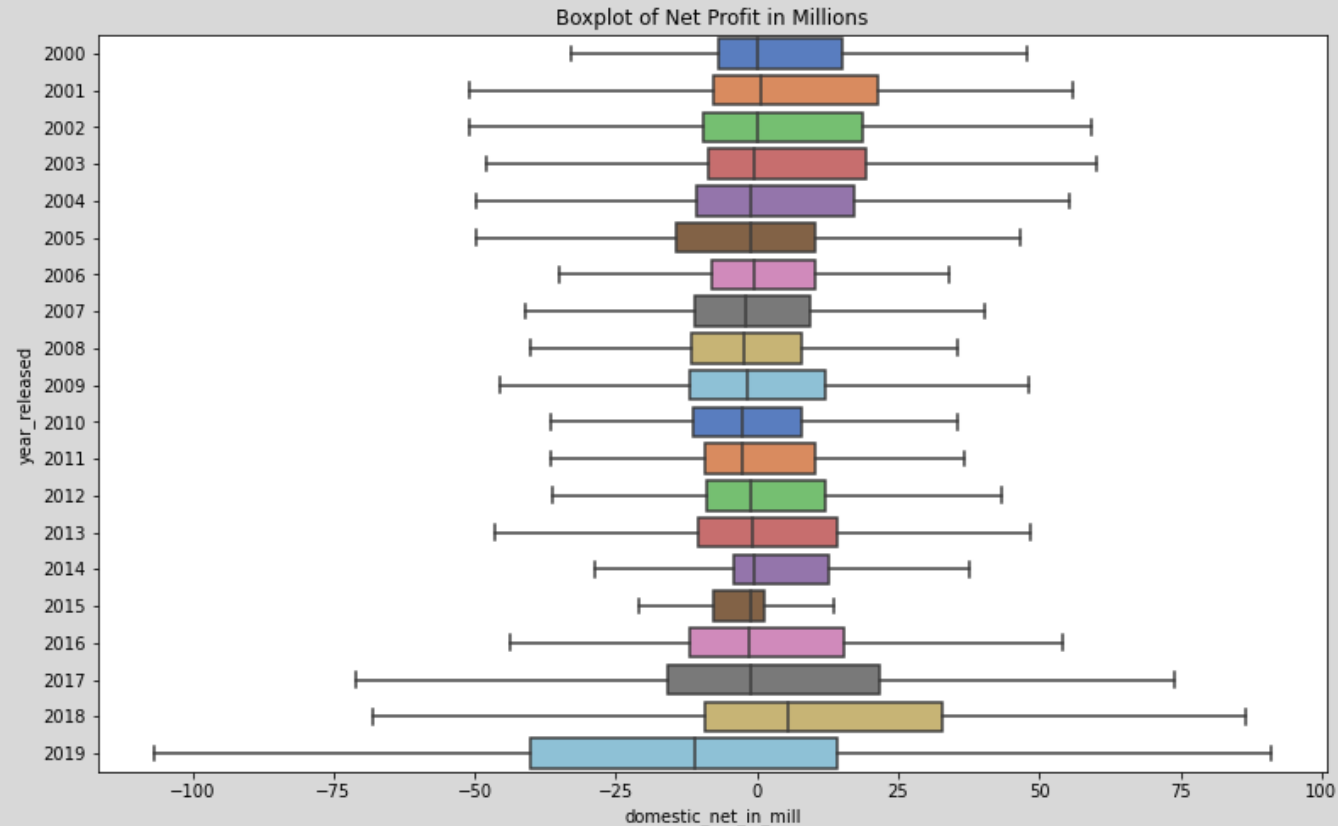
- The number of movies that reach the box office has decreased dramatically since 2015
- Over the last 20 years total ticket sales have not increased much showing a flat demand
- Production budgets have risen over the last 20 years
- It is important to note that this is only box office data -- not including streaming!
- Profit per movie is the difference in ticket sales to the production budget
 - Studios share this money movie theaters

What are the trends in the movie industry in regards to ticket sales, production budget, and profitability?



- Regression line of ticket sales is positive showing there are more ticket sales per movie over time
 - this is slightly contradictory to our previous graph and shows the effect of extreme outliers
- Production budgets are outpacing the ticket sales
 - ~\$18 million budget increase of 20 years versus ~\$15 million over 20 years
- Due production budgets barely outpacing ticket sales the Box Office profit is flat to slightly negative

Distribution of Outcomes



- The body of the box shows how half of the movies in our data fared in terms of the net profit and the line inside the box shows the company that finished in the exact middle.
 - Reminder: Here we saying... net profit = ticket sales- production budget
- The whiskers represent the profit range of about 95% of the movies in our data
- The bigger the box and whiskers the more unpredictable the outcome

So is the movie industry a good business to get into?

- Conclusion:
 - Based on this data -- **I would not recommend beginning this business venture**
 - Why?
 - **Demand weakening**
 - Ticket Sales per movie are not growing over time
 - Movies are becoming more **expensive to produce**

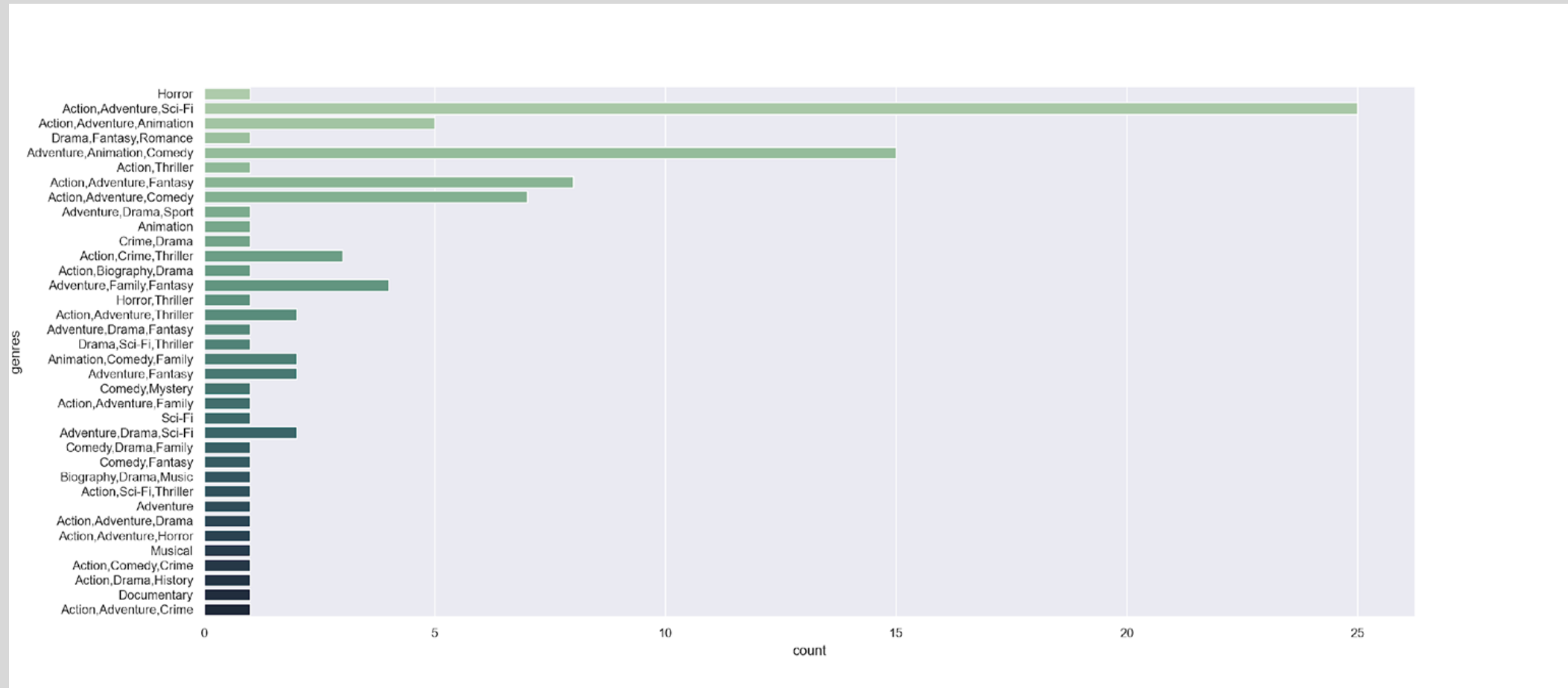
There is still a chance!

- The data we examined is ONLY box office data!
 - Need to evaluate the other sources of revenue such as selling royalties from selling showing rights to streaming services such as Netflix!
- Our optimization analysis can help increase the probability of producing a hit movie!



Genre

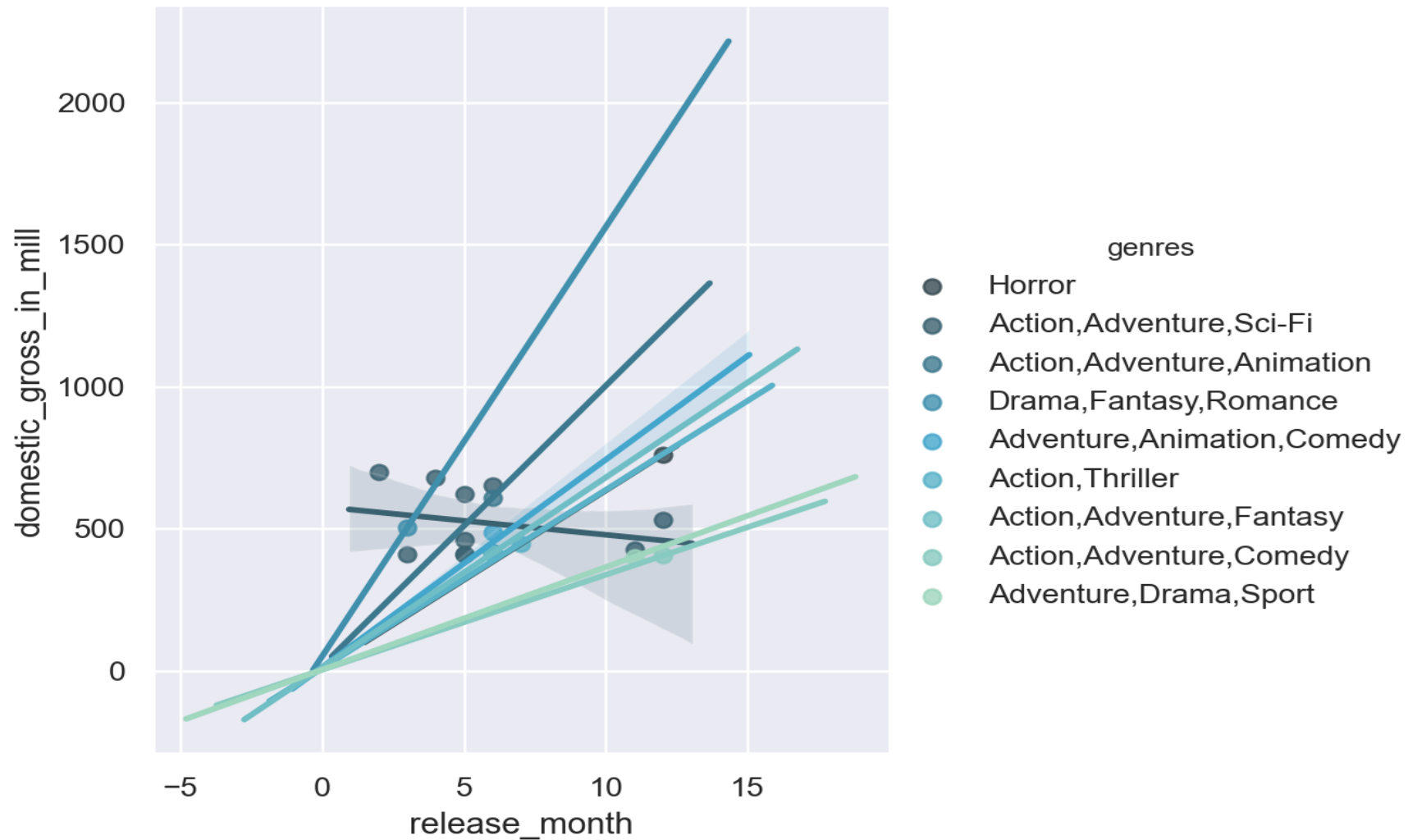
What is the top overall movie genre?



We wanted to take a deeper dive into exactly what the top movie genres were. We did a column count of the top 100 movies in the past 20 years being ranked by highest domestic gross revenues. The category 'Action, Adventure, Sci-Fi ' was the top genre with 25 movies out of 100.

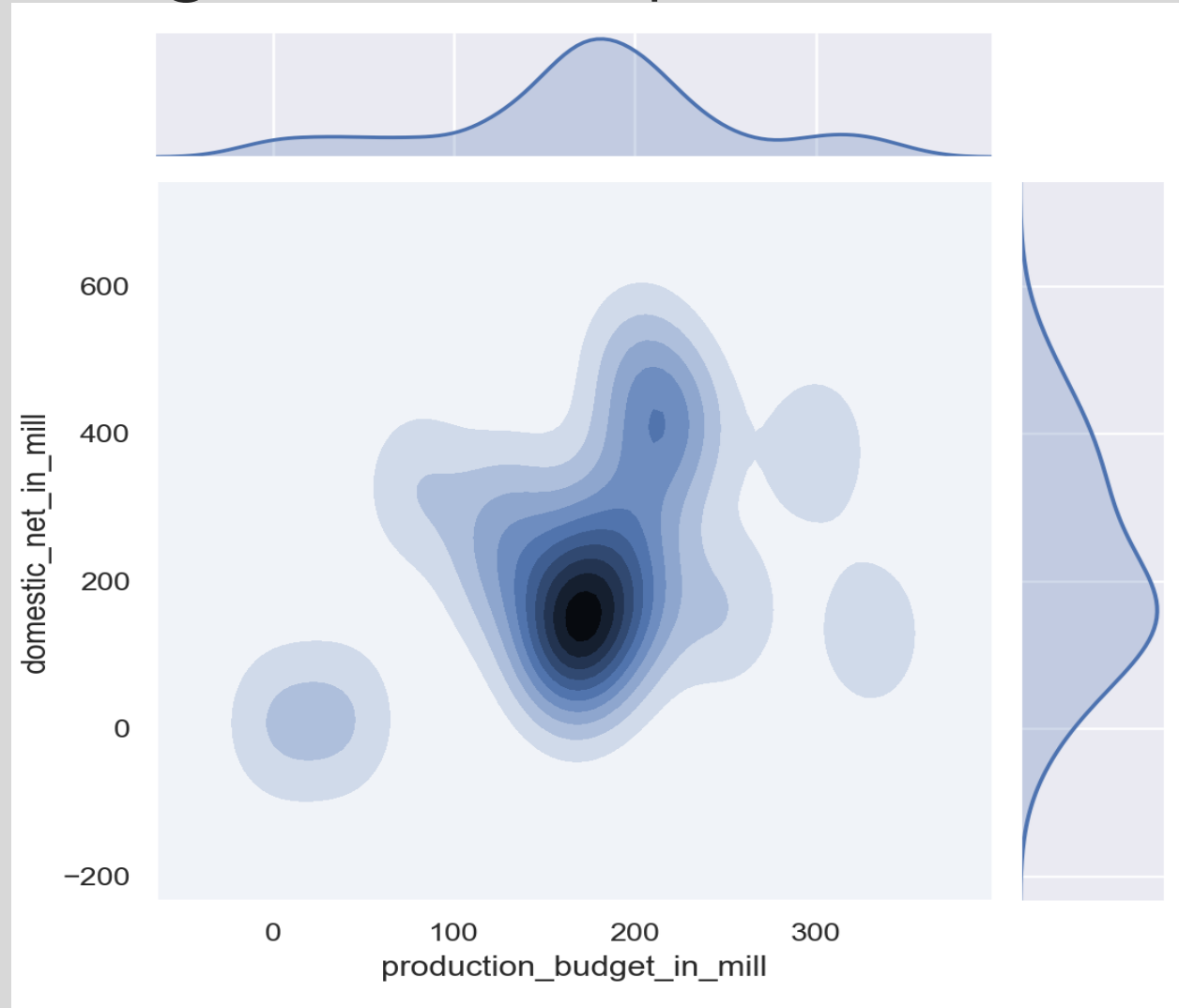
Genre

Is there a correlation between release month and higher profitability in that genre?



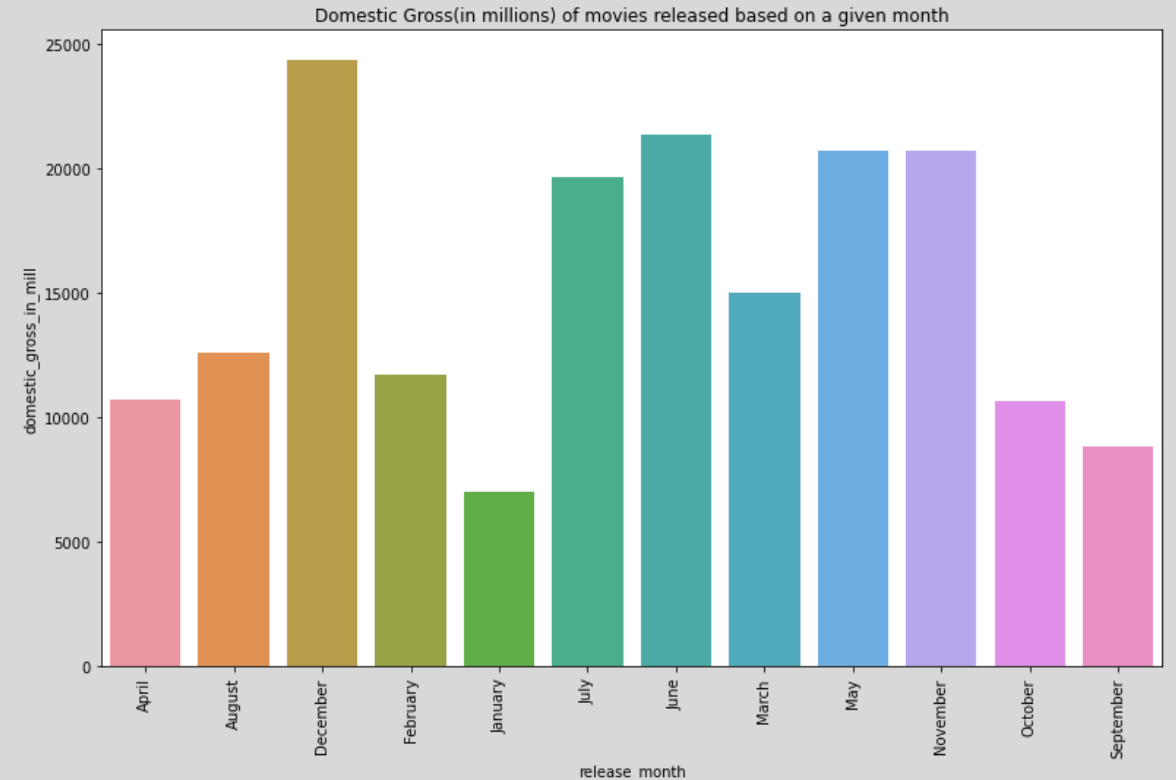
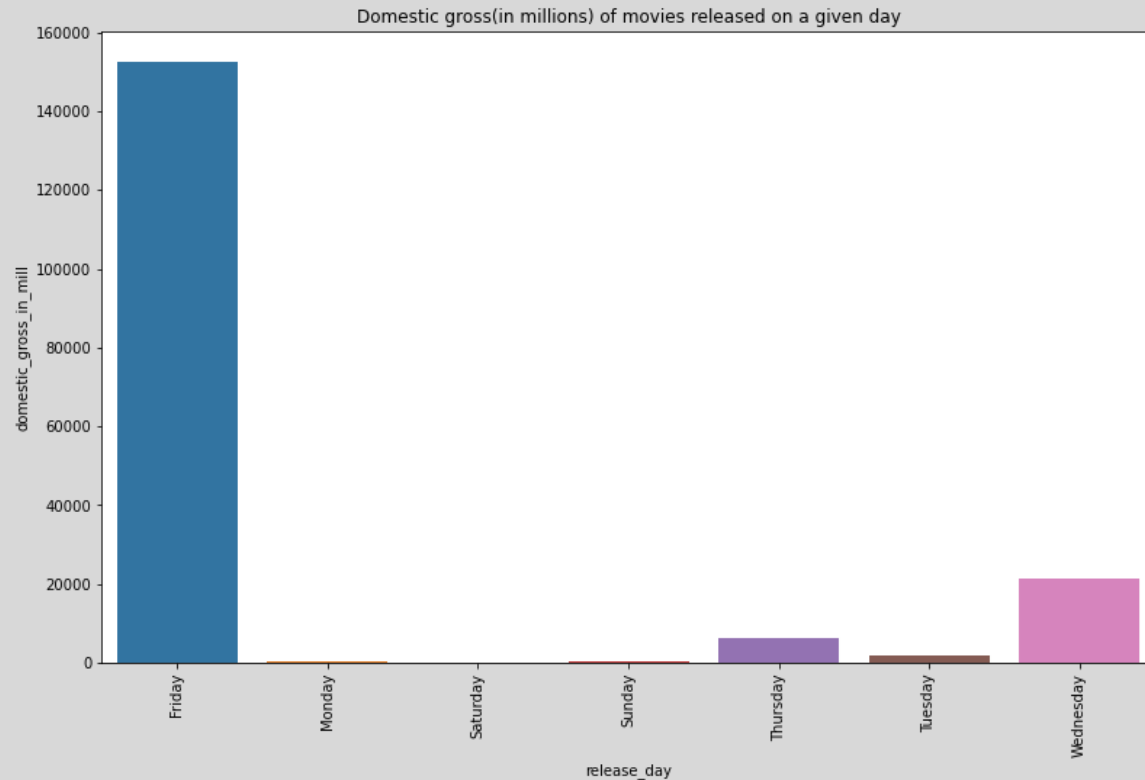
Genre

Is there a correlation between production budget and net profits in the that genre?



Release Day/Month

What is the best day/month to release a movie based on domestic gross

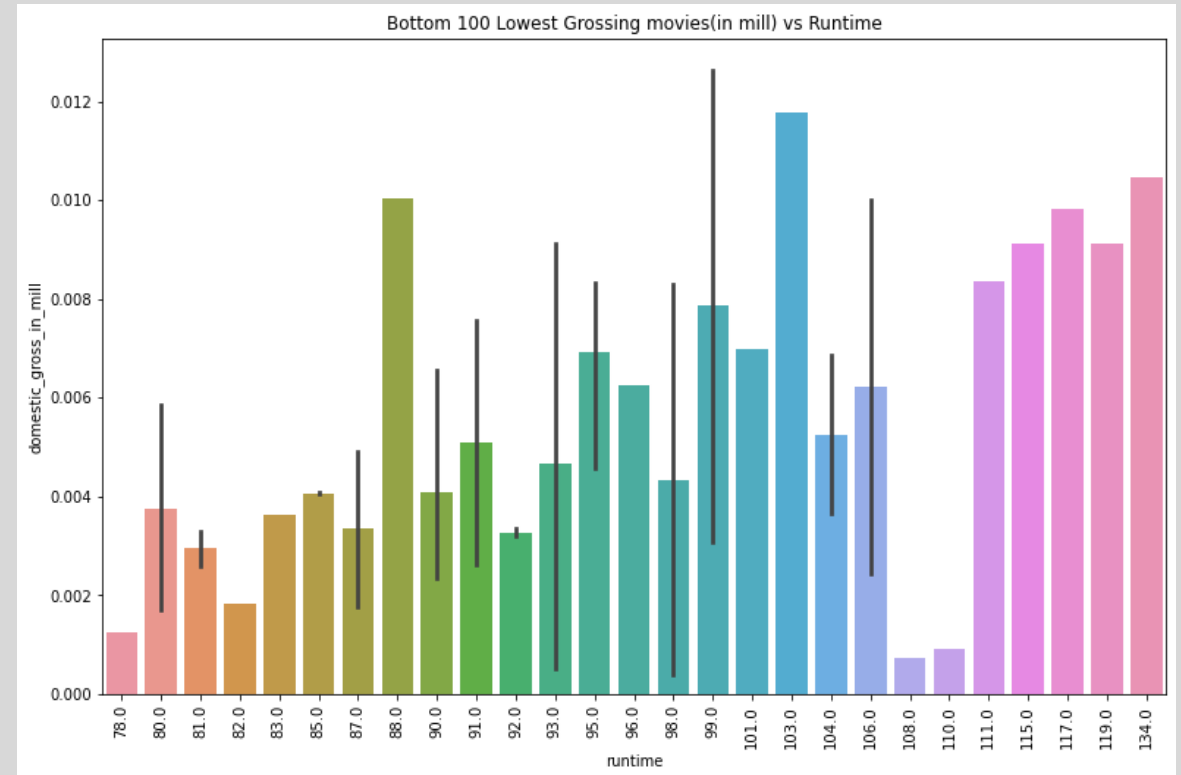
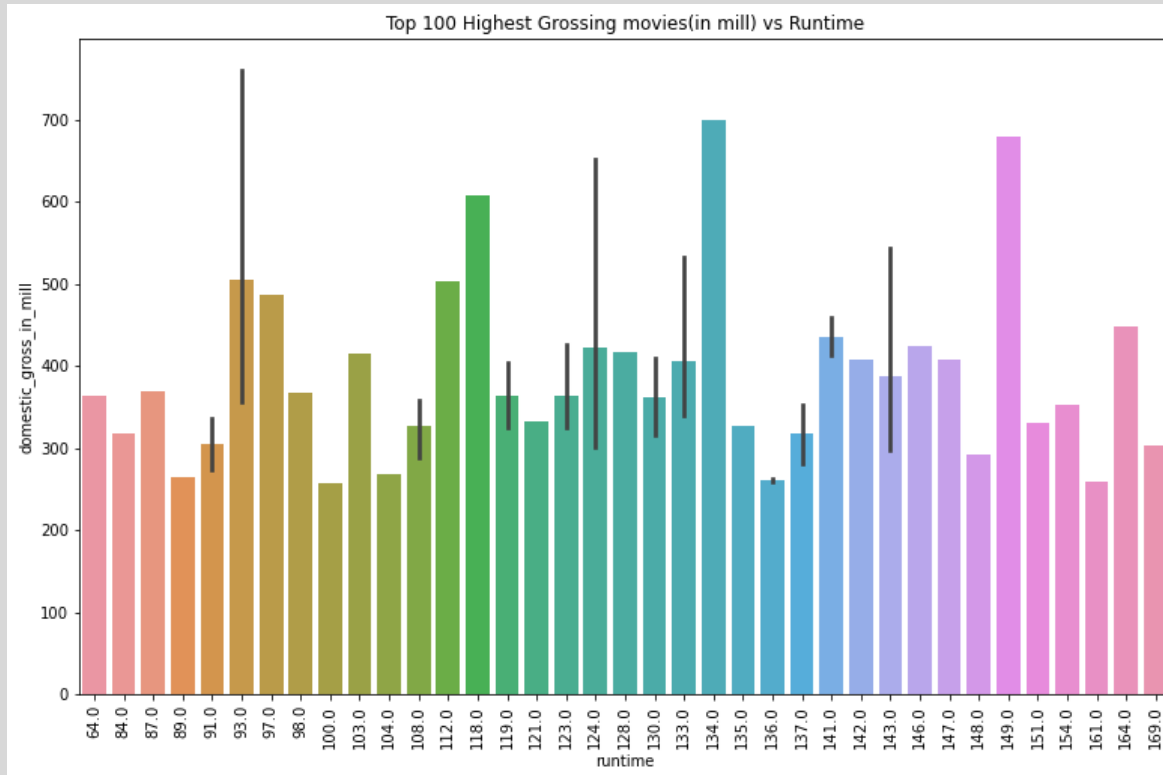


As we see here, the movies released on a **Friday** have the most ticket sales/gross.

December by far is the most profitable month for a movie to be released in.

Runtime

Is there a relation between runtime and domestic gross

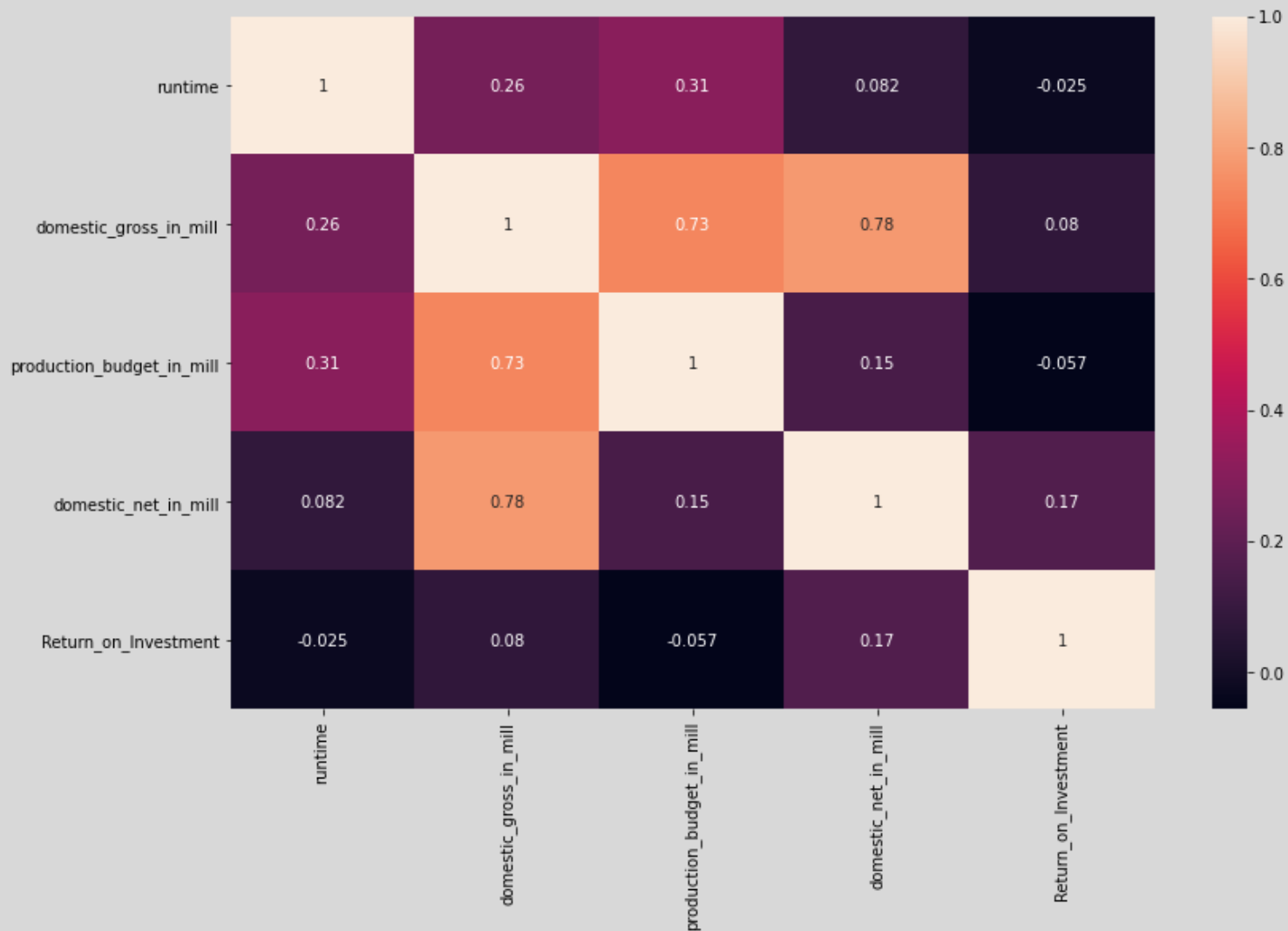


It seems that the highest grossing movies average to be around **123 minutes** while the lowest grossing movies average around the **95 minute** mark. The most popular movies in the top 100 movies have a runtime of 149 minutes. If we take into consideration the most popular movies like Titanic, Avatar, All Marvel movies, this is what we would expect. As per our numbers, people normally like longer, more involved movies.

Runtime

Correlation of Runtime vs Production Budget

As we can see in the heatmap that the correlation coefficient of runtime to production budget is positively correlated and is **0.31** which is moderately strong. Keep in mind that one of the factors that will make production budget increase is the increase in movie runtime.



Future Work

1. Further Optimization correlations to reduce costs

- Which genres are the cheapest to make?
- Are experience directors and actors really need to make money?
- Evaluate box office success of inexperienced movie studios

2. Evaluate the revenue generated from streaming services such as Netflix

- A big portion of the revenue is missing from film studios by only looking at box office data. I would like to see what the total revenue streams of this business is
- Adding in inflation data to this to see what the true box office dollars are to get a better look at ticket sale dollars over the years

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