



**DATA-DRIVEN INSIGHTS AND RECOMMENDATIONS**

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# **MAKING MOVIES**

Photo by Denise Jans on Unsplash

## PROBLEM STATEMENT

- ▶ Having created a movie studio, you are looking to enter the film-making industry
- ▶ You would like to **better understand the industry and the characteristics of a successful film**
- ▶ You are after **actionable insights** to maximise your ROI



Image source: Joshua\_Willson from Pixabay

## BUSINESS VALUE

*Avengers: Endgame's \$1.2 billion opening weekend is the biggest in movie history*

Alex Abad-Santos, Vox, April 2019

*Box office cats-tastrophe: Cats projected to lose \$70m*

André Wheeler, The Guardian, Dec 2019

- Contrast between box office record (and we can expect good return/profits) and a flop.
- Movie industry has potential but need to be careful to make the “right” movie
- Data analysis can provide insights into what makes a successful movie

## OUR APPROACH

- ▶ Are movies profitable?
- ▶ What makes a successful movie?

Budget



Genre



Runtime



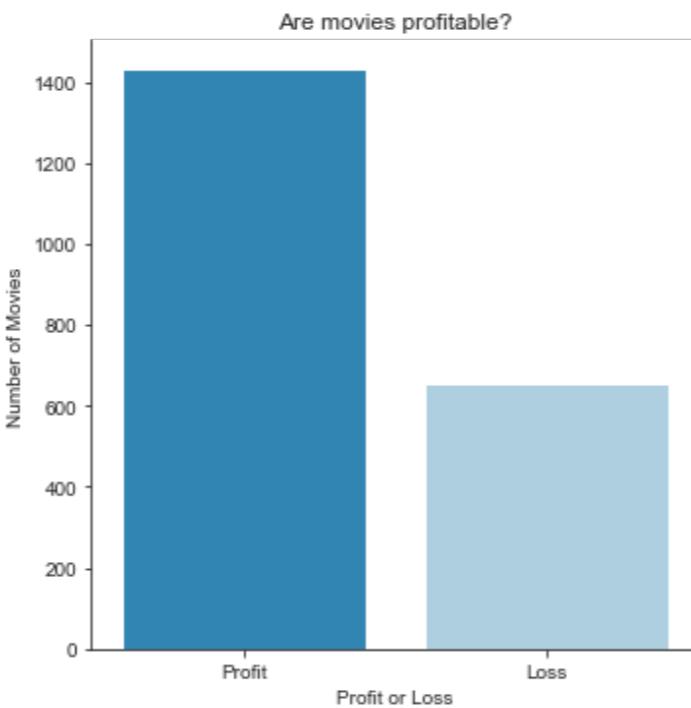
Release day



- ▶ Netflix original movies
- ▶ Movies based on video games

- Understand what a successful movie looks like in terms of profit and profit margin
- Look at key characteristics and determine 1) how much they influence worldwide gross and 2) what they look like for top movies
- Compare box office with Netflix original movies - online distribution
- Briefly touch upon movies based on video games, as you have existing franchises

# PROFIT



- Profit = worldwide gross revenue - production budget
- Dataset of just over 2000 movies from 1930 to 2019, but with majority post 2010
- Very roughly looking at 2/3 profit, 1/3 loss
- Simplified analysis. Worldwide gross is not the only revenue stream, with merchandise sales, DVD sales and streaming rights also generating revenue. Likewise the production budget excludes costs such as advertising which are seen as the responsibility of the distributor.
- Movie industry is notorious for having opaque accounting methods and we would advise seeking specialist advice regarding budget and financials
- Profit margin = profit over gross revenue, expressed as percentage
- For a top 100 grossing movie: ~80%.
- Top profit movies are the action and adventure blockbusters we would expect
- Highest profit margin have much smaller budgets and appear to be horror films.

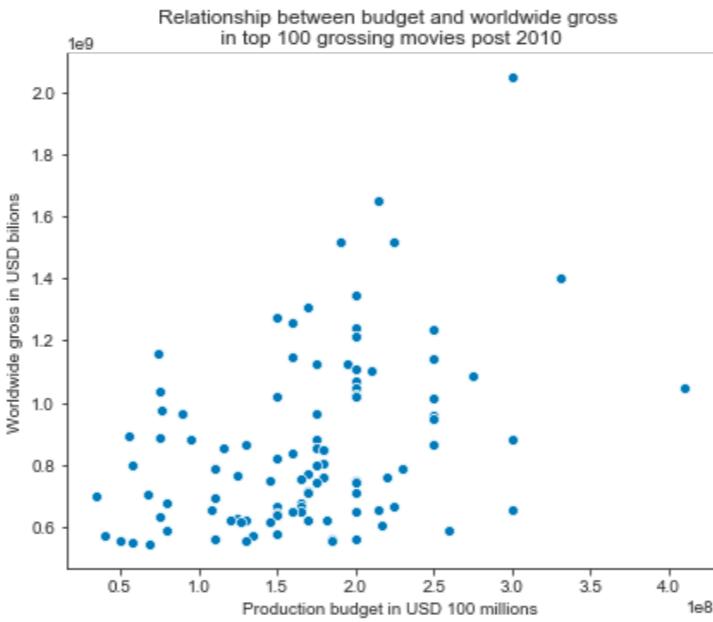
“TO MAKE A FILM IS EASY; TO MAKE  
A GOOD FILM IS WAR. TO MAKE A  
VERY GOOD FILM IS A MIRACLE.”

Alejandro Gonzalez Inarritu

Alejandro Gonzalez Inarritu - Mexican film director and producer  
Known for Birdman (2014 black comedy-drama) and The Revenant (2015 survival drama)

## MAKING MOVIES

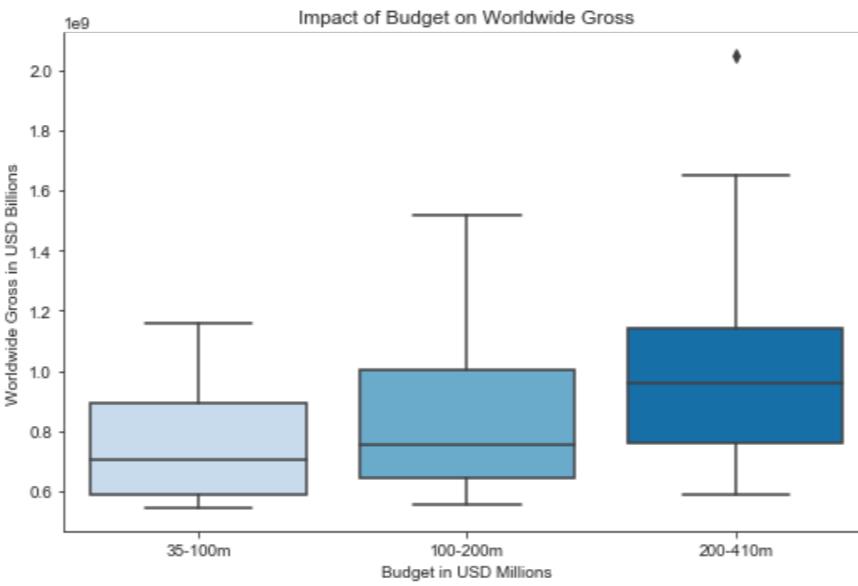
### BUDGET



- With a starting point looking at profit/budget - focus on top 100 grossing movies to get a better budget approximation
- No correlation between budget and worldwide gross.
- Within the top 100 grossing movies, some have seen great success with a small budget whereas others haven't performed that well despite more money invested.

## MAKING MOVIES

### BUDGET



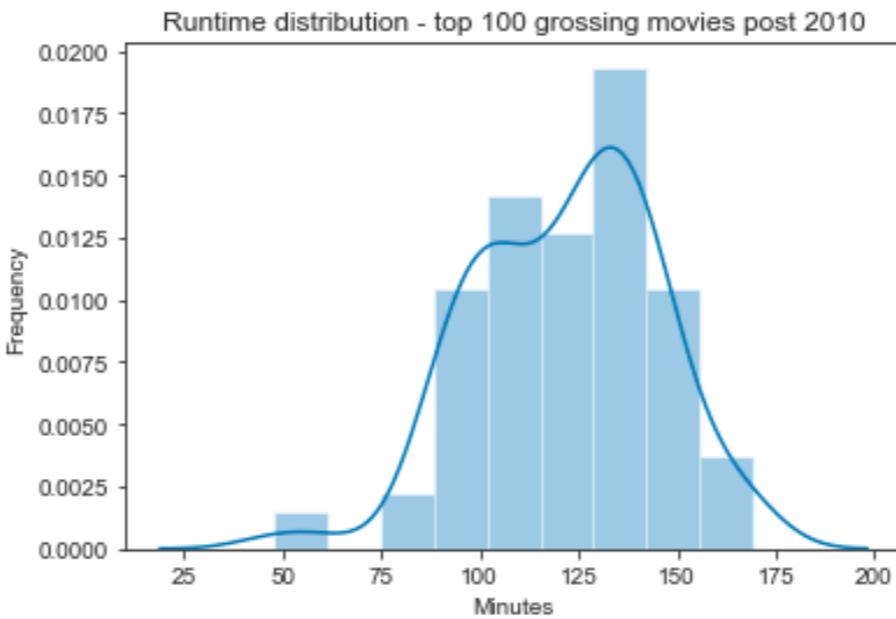
**RECOMMENDATION: \$100-200M**

- Looked at budget of top 100 grossing films post 2011
- Budget range between \$35 million and \$410 million.
- Can see overall increase in gross - middle line is the median, box plot shows inner quartiles so between 25-75%.
- Recommend middle \$100-200m
- Need further analysis

## MAKING MOVIES

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### RUNTIME

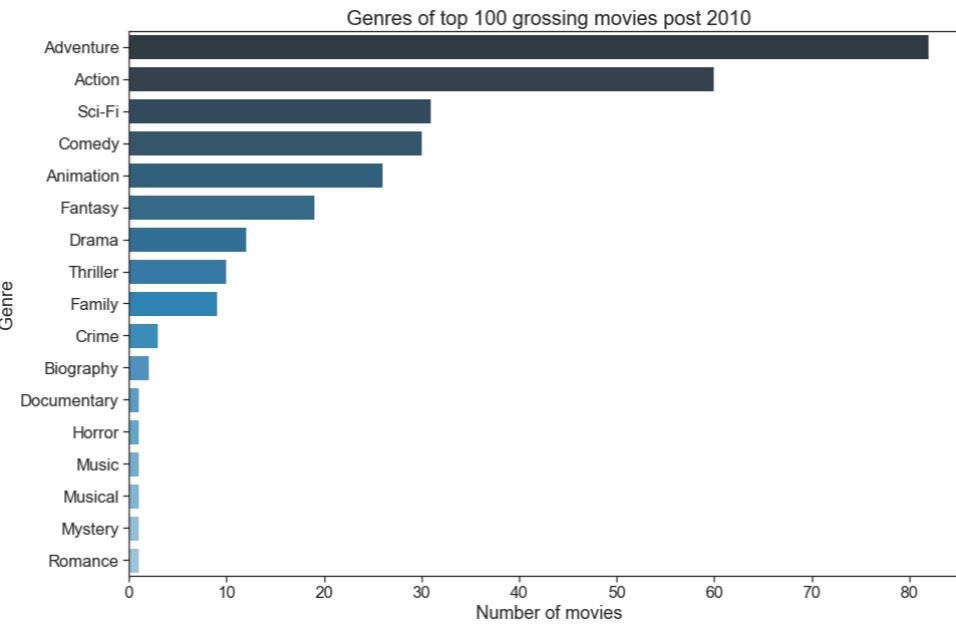


**RECOMMENDATION: ~120 MINS**

- Average runtime for a movie is 100 minutes
- Top 100 movie has runtime of 120 minutes
- No direct link between runtime and gross
- Longer movie doesn't require larger budget

## MAKING MOVIES

### GENRE

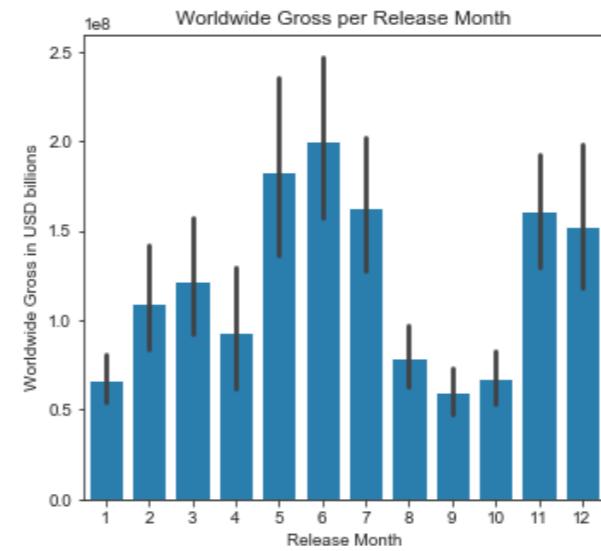
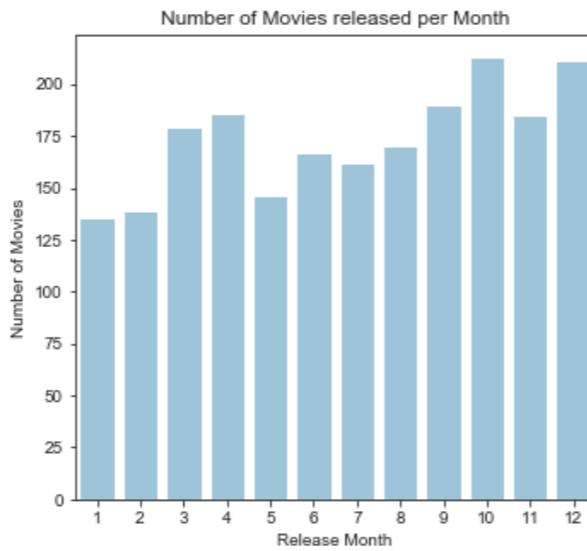


**RECOMMENDATION: ACTION/ ADVENTURE**

- More than 80 films are adventure and 60 are action
- Action/adventure movie costs on average \$ 45 million more
- Other genres to consider sci-fi, comedy or animation

## MAKING MOVIES

### RELEASE MONTH

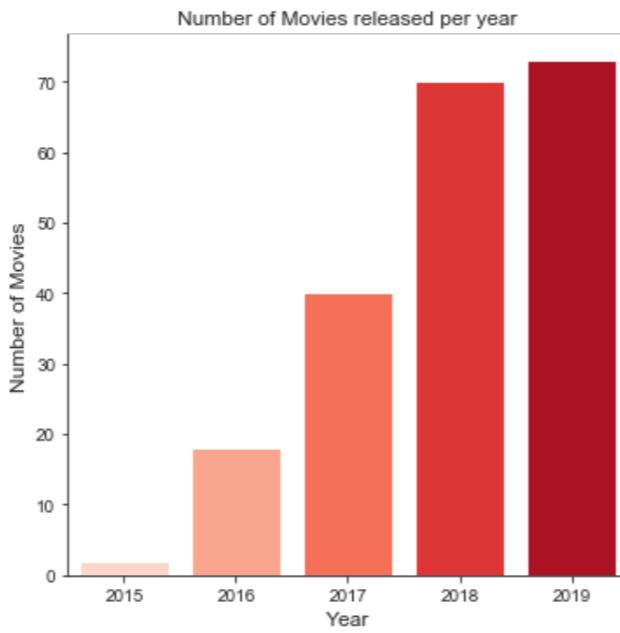


**RECOMMENDATION: MAY/JUNE OR NOVEMBER/DECEMBER**

- May/June: start of Summer blockbuster season
- November/December: holidays and optimised for Awards

## MAKING MOVIES

### NETFLIX ORIGINAL MOVIES



Runtime:

~ 99 minutes

Release month:

November/December

- Initial high growth, now 70 films per annum
- Shorter runtime of around 99 minutes
- Comedy/Drama stand out
- Contrast to box office which lends itself well to action/adventure and longer movies.

## MAKING MOVIES

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### MOVIES BASED ON VIDEO GAMES

- ▶ 1-3 movies each year
- ▶ Average Gross: \$135m
- ▶ Average Budget: \$50m
- ▶ Action/Adventure dominate
- ▶ Benefit from existing fanbase



- Gross and budget lower than top 100 grossing movies but still good opportunity
- Suit action/adventure genre which we saw to be top performing
- Existing franchises for Microsoft: Halo, Forza and Minecraft

## RECOMMENDATIONS

- ▶ Budget: at least \$50m and ideally \$100-200m
- ▶ Runtime: ~120 mins
- ▶ Genre: Action/Adventure
- ▶ Release Month: May/June or November/December
- ▶ Decide on distribution model as characteristics differ
- ▶ Consider a movie based on existing video game franchise

## FUTURE WORK

- ▶ Further financial analysis - e.g. how to allocate budget
- ▶ Analysis of additional revenue streams e.g. merchandise
- ▶ Investigate top creative talent (director, producer, actors)
- ▶ Sentiment analysis of reviews
- ▶ Analysis of screenplay source e.g. based on novel vs original

“EVERY TIME I GO TO A MOVIE,  
IT'S MAGIC, NO MATTER WHAT  
THE MOVIE'S ABOUT.”

Steven Spielberg



# THANK YOU

Nadine Amersi-Belton

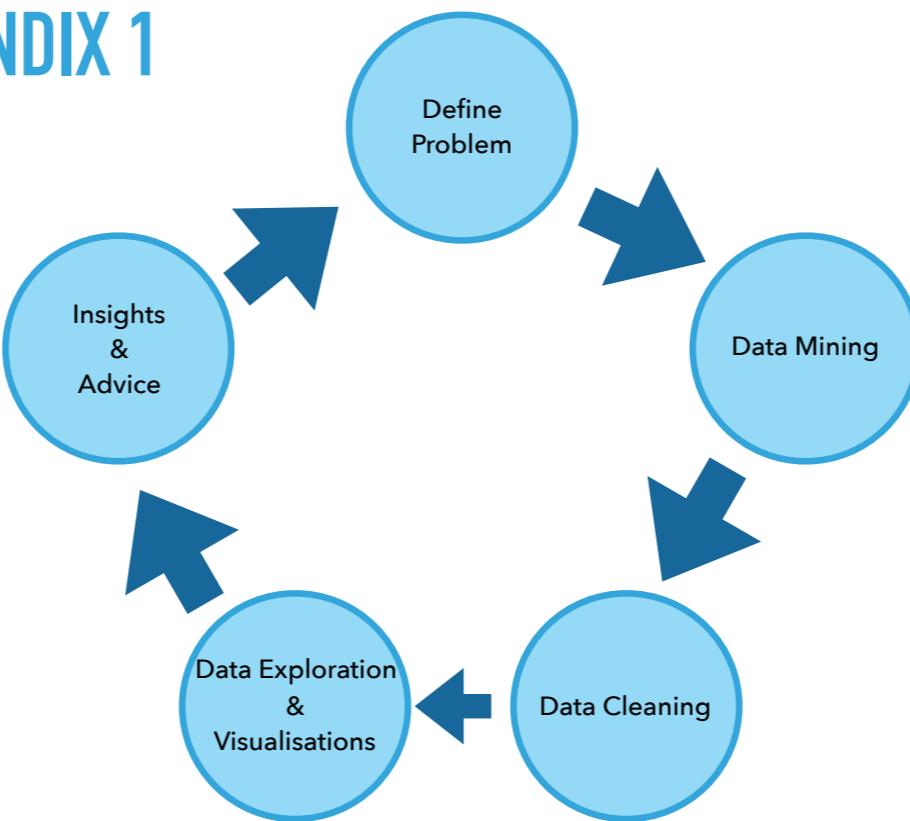
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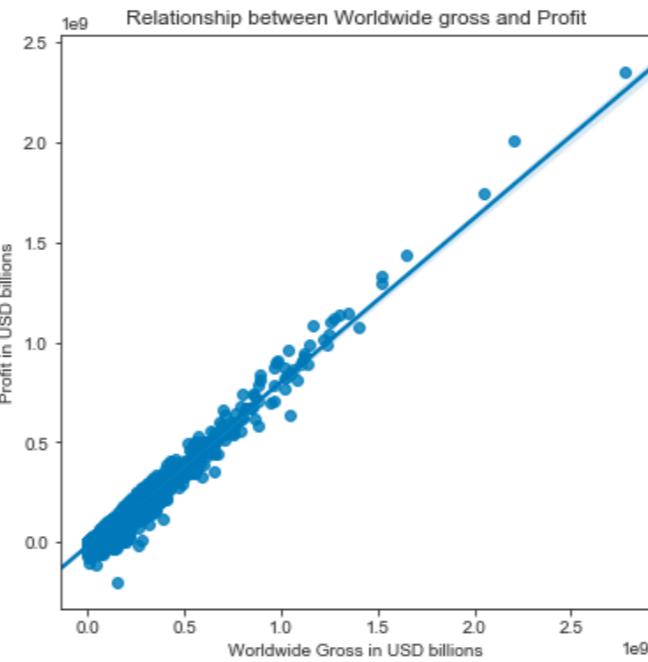
Image source: Mediamodifier from Pixabay

## APPENDIX 1



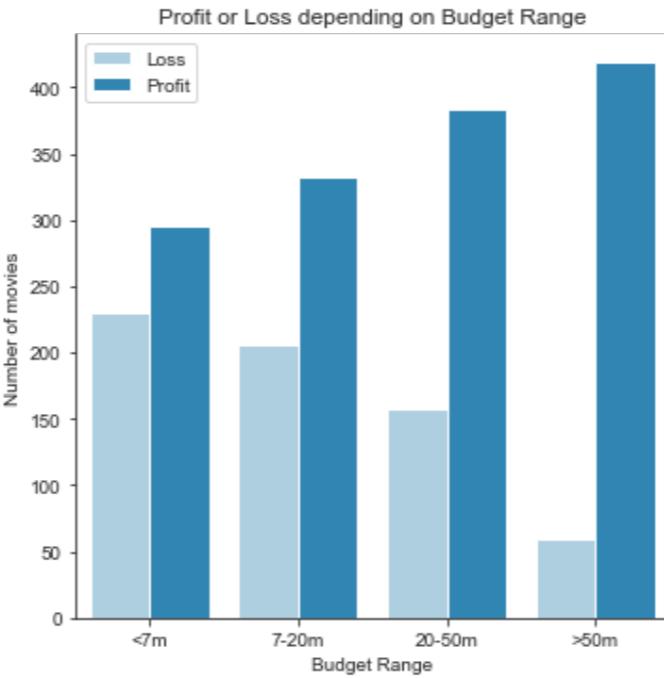
- Understand how a data analysis project works, for those not familiar
- Define problem was previous slide
- Data mining is gathering the data, data cleaning is manipulating it to be able to extract value from it
- Presentation focuses on visualisations and advice

## APPENDIX 2 – PROFIT AND WORLDWIDE GROSS



- Strong correlation between gross and profit
- Top grossing movies = top profitable movies
- When we investigate top grossing movies, think of them as top profitable movies too

## APPENDIX 3 – BUDGET

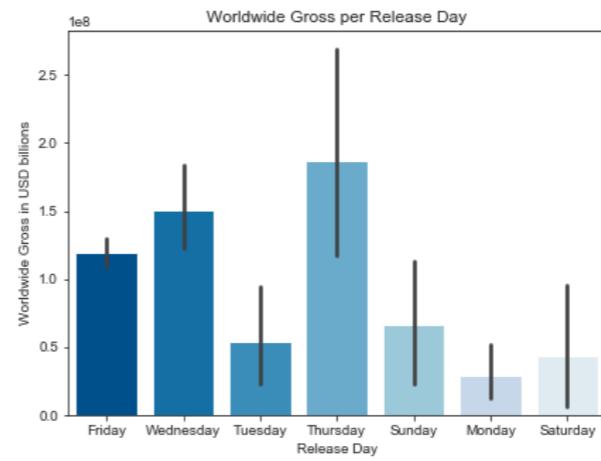
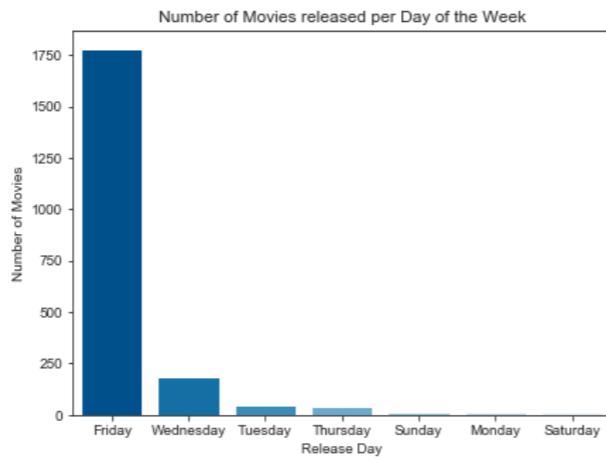


- Budget range based on distribution of budgets, ie quarters. Same number of movies in each range.

- For small budget almost equal chances of making a profit or loss

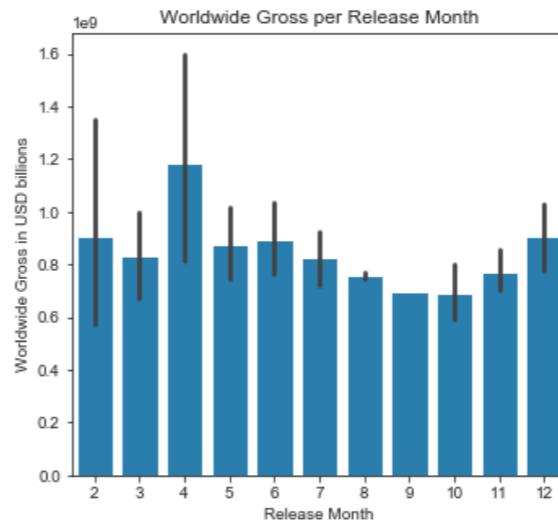
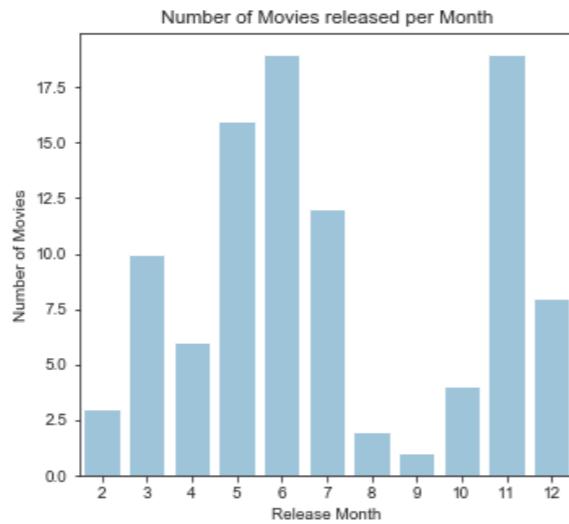
- Starting point consider a budget of \$50m

## APPENDIX 4 – RELEASE DAY



MOST POPULAR DAY OF THE WEEK: FRIDAY

## APPENDIX 5 – RELEASE MONTH FOR TOP MOVIES



- May/June: start of Summer blockbuster season
- November/December: holidays and optimised for Awards