Movies Profitability Analysis Based on Genres' Criteria.

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- The purpose of this project is to analyze a large data set of movies that includes many different types of information about each movie, such as genres, release dates, budgets, box office earnings generated domestically and worldwide.
- The analysis will focus on following characteristics:
  - release month,
  - the highest number of movies released by genres,
  - average profit by genres combined into groups,
  - average profit by individual genres, and
  - a number of movies released in each genre in a year over year comparison.

- I will measure the success of a movie based on budget and revenue.
- I will explore how the release month affects the success: in what months the most profitable movies are released.
- I will look at most popular genres by count.
- I will analyze a list of grouped genres vs average profit as well as individual genres vs average profit
- At the end, I will provide my recommendations and plan for further analysis.
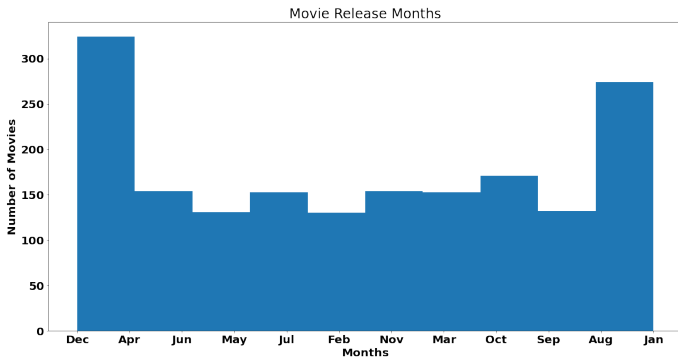
- As the demand for new, original high quality content grows, driving the competition among the industry players up, the need for comprehensive targeted analytic about what makes a movie successful has been increasing.

- With the ever growing interest for new movies and a wide range of movie genres, precise analytic about the performance of movies can give useful information to studios, so the most strategic decisions regarding production and financing of the projects can be made.

- This project will use the data from the IMDB database.

- Specifically, the table that contains release dates, movie titles, and gross revenue domestically and worldwide.

- I will also employ the table with primary titles, original titles, start year, run minutes, and genres.
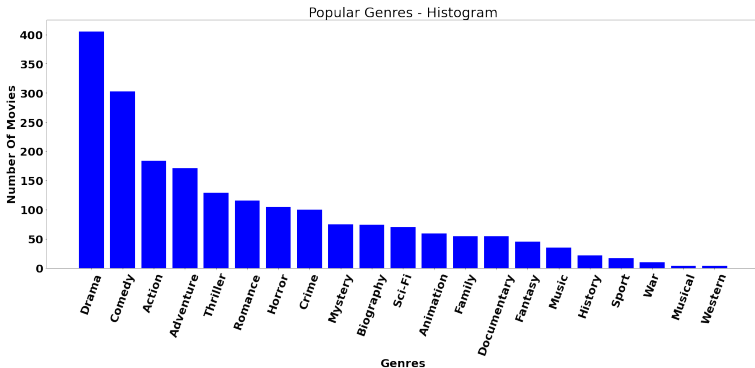
Release Month

- First part of the data analysis is on the release month.
- It is clear from the histogram that most movies are released in December and January.
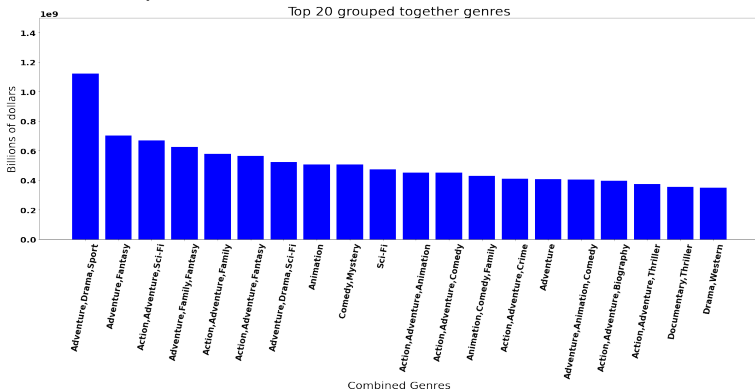

Movie Release Months

Genres

- Here is the histogram that shows top genres present in the movies that make profit both domestically and worldwide
- One can see that out of all titles the most movies are in the Drama and Comedy.
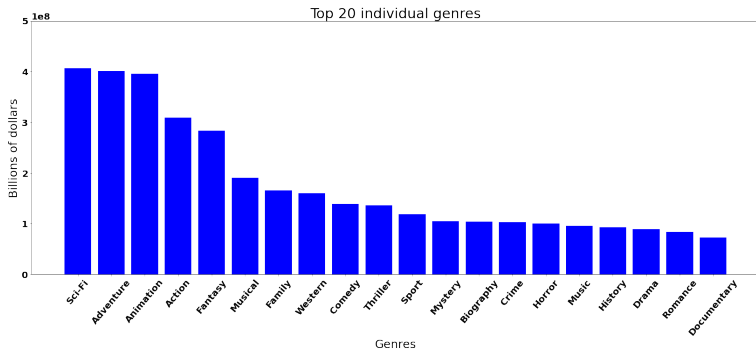

Popular Genres - Histogram

Intersection of Genres vs Average Profit

- I am also interested in the most common intersection of genres in the movies that bring profit and we use average profit for the resulting histogram.
- The most profitable intersection of genres is Adventure, Drama, and Sport.
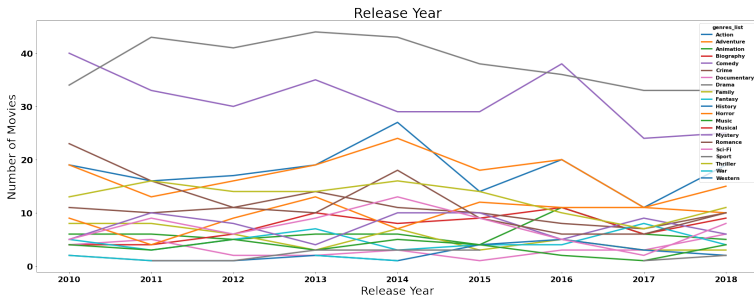

Top 20 grouped together genres

Individual Genres vs Average Profit

- Now, most common individual genres in the movies that bring profit and we use average profit for the resulting histogram.
- We can see on the histogram below that most common individual genres are Sci-Fi, Adventure, and Animation.
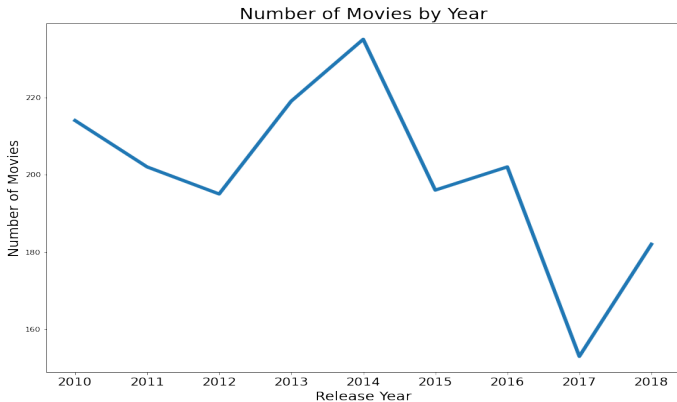

Top 20 individual genres

Movies vs Year Released

- It is also interesting to look at a number of movies produced in each genre by year.
- We can see on the graph below that most common movies by genres are Comedy and Drama.

Total Number of Movies per Year

- One can suspect, based on the previous plot, that the total number of movies is decreasing.
- Next plot shows the total number of movies starts to decrease after 2014.

Number of Movies by Year

- I used the following data analysis:
  - Dropped duplicates, if necessary.
  - There are 4000 NaN values in the genres columns of the Basic Titles table. I decided to keep these rows but skip them for visualization purposes.
  - I converted dollar amounts from string format into integer format.
  - I converted release month from integer format into string for better readability in the histogram's labels.
  - I used appropriate grouping and aggregation by average value for the analysis to produce insights into the genres.

After investigation I can see the following trends

1. Most movies are released in December and January.

2. The most common genre among all movies is Drama, then with a big gap, Comedy. From average profit vs combination of genres histogram, we see that Drama has to be combined together with the Adventure or Sci-Fi to bring profit. From the average profit vs individual genre histogram, we see that Sci-Fi, Adventure, and Animation bring biggest profits.

3. If we look at the Number of Movies by Genre vs Release Year plot, we notice the most commonly produced movies are Comedies and Drama year after year. We can also notice that the total number of movies is declining. This trend is confirmed in the next plot: Total Number of Movies by Year.

Conclusions: Suggestions for a Company that wants to enter the Movie Production industry:

- I recommend to consider the following genres or their combination:
    1. Drama
    2. Adventure
    3. Sci-Fi
- I recommend to release the movie either in December or in January.
- Due to the rising popularity of the streaming platforms and decrease in total number of movies produced, I recommend to consider collaboration with one of the online streaming content provider in the production of a movie

Conclusions: Ways to improve the analysis

- It would be great to include more recent data into analysis.
- Include movies produced by streaming platforms into analysis.
- Extend the scope of the project to include:
  - analysis of budgets vs profitability
  - analysis of directors vs profit
  - analysis of actors/actresses and their salaries vs profit