# MICROSOFT AND THE FILM INDUSTRY

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**DECEMBER 10, 2023**

# OVERVIEW

Microsoft is one of the biggest companies in the world and this project has been undertaken to investigate and analyse the best way they can get into the movie business. Through data manipulation and analysis of various data sets of the top movies whether in terms of budget, ratings or profitability, Microsoft can be able to make an informed decision of how and with whom they will venture into the movie industry. The analysis below will enable them to have a reference point to back their decisions.

# BUSINESS PROBLEM

With the vast economic and financial resources at Microsoft's disposal, it is only logical that the next step is to go into the movie industry so as to diversify their portfolio. This study will enable them to identify and settle on the most appropriate movies they will produce.

# OBJECTIVES

The main goals of the project are:
- Average production costs for a film
- Revenue generated from the industry
- Comparing studio performances
- Characteristics of the most popular movies
- Recommendations on how Microsoft should approach the film industry

# DATA

There are multiple datasets that provide a reference point to enable the analysis of various movies and their associated characteristics. This data includes sources such as:

- bom.movies_gross.csv
- im.db
- rt.movie_info.tsv
- rt.reviews.tsv
- tmdb.movies.csv
- tn.movie_budgets.csv

# DATA UNDERSTANDING

In this study, we will be going through a couple of records from different sources so we can get insight into attributes such as:

- movie ratings
- production budgets
- Revenue generated
- Studios producing movies
- Top movie directors and writers
- Genre of movies that are most popular

# RESULTS

## 1. AVERAGE PRODUCTION COSTS FOR A FILM

The average production cost of the film was calculated using the (tn.movie_budgets.csv) dataset. Using the in-built functions in python well-documented in the attached .ipynb file, the average production cost was found to be **$31,587,757** for a moderately successful film.

# 2. REVENUE GENERATED FROM MOVIES

The same dataset(tn.movie_budgets.csv) was used to find the revenue generated by substracting the production cost from the worldwide gross. The average revenue generated by the films in this dataset was **$59,899,703**.

The rankings of the highest revenues by films was also calculated with the top ten closing out at atleast **1 billion dollars**(Jurassic World: Fallen Kingdom) with the top film generating **2.35 billion dollars**(Avatar).

| MOVIE | REVENUE |
|---|---|
| 1. Avatar | 2,351,345,279 |
| 2.Titanic | 2,008,208,395 |
| 3. Avengers: Infinity War | 1,748,134,200 |
| 4. Star Wars Ep. VII: The Force Awake | 1,747,311,220 |
| 5. Jurassic World | 1,433,854,864 |
| 6. Furious 7 | 1,328,722,794 |
| 7. The Avengers | 1,292,935,897 |
| 8. Harry Potter and the Deathly Hallows: Part II | 1,216,693,157 |
| 9. Black Pan | 1,148,258,224 |
| 10. Jurassic World: Fallen Kingdom | 1,135,772,799 |

# 3. COMPARING STUDIO PERFORMANCES

This part of the study will require a different dataset(bom.movie_gross.csv) that includes the studios that produce this films.
By using the total foreign gross earnings by studios in all their movies, the studios can be ranked accoring to total earnings.

| RANK | STUDIO | FOREIGN_GROSS |
|------|--------|---------------|
| 1. | BV | 25,793,850,000 |
| 2. | FOX | 20,055,870,000 |
| 3. | WB | 18,667,900,000 |
| 4. | UNI | 16,854,770,000 |
| 5. | SONY | 13,945,350,000 |
| 6. | PAR | 11,863,380,000 |
| 7. | WB(NL) | 6,339,000,000 |
| 8. | LGF | 4,482,619,000 |
| 9. | P/DW | 3,393,600,000 |
| 10. | LG/S | 3,353,724,000 |

The studio performances over time are also compared. This is further illustrated in the recommendations.

# 4. CHARACTERISTICS OF THE MOST POPULAR MOVIES

Using the im.db dataset, the attributes(genre, rating,and directors of the top movies) could be determined. This is well documented on the next slide.

| Ranking | original_title | averagerating | genres | start_year | primary_name | primary_profession |
|---|---|---|---|---|---|---|
| 1 | Exteriores: Mulheres Brasileiras na Diplomacia | 10.000 | Documentary | 2018 | Ivana Diniz | director,writer |
| 2 | Freeing Bernie Baran | 10.000 | Crime,Documentary | 2010 | Daniel Alexander | director |
| 3 | Hercule contre Hermès | 10.000 | Documentary | 2012 | Mohamed Ulad-Mohand | producer,director,writer |
| 4 | I Was Born Yesterday! | 10.000 | Documentary | 2015 | Soudabeh Moradian | director,editor,producer |
| 5 | Dog Days in the Heartland | 10.000 | Drama | 2017 | Chad Carpenter | director,producer,miscellaneous |
| 6 | Revolution Food | 10.000 | Documentary | 2015 | Loreto Di Cesare | cinematographer,director,producer |
| 7 | Fly High: Story of the Disc Dog | 10.000 | Documentary | 2019 | Lindsay Thompson | cinematographer,director,actress |
| 8 | All Around Us | 10.000 | Documentary | 2019 | Tristan David Luciotti | actor,writer,producer |
| 9 | Atlas Mountain: Barbary Macaques - Childcaring... | 10.000 | Documentary | 2015 | Masahiro Hayakawa | director,producer |
| 10 | Atlas Mountain: Barbary Macaques - Childcaring... | 10.000 | Documentary | 2015 | Michael J. Sanderson | cinematographer,camera_department,producer |

# RECOMMENDATIONS

**1.** The first recommendation is that if Microsoft should venture into films, they should seriously consider doing a documentary movie. The evidence is clear since more than 80% of the top 100 rated films were documentaries or part documentaries.

This can be clearly shown by plotting the frequency of different genres of movies in the top 100.

Top Genres Frequency in the Movie List
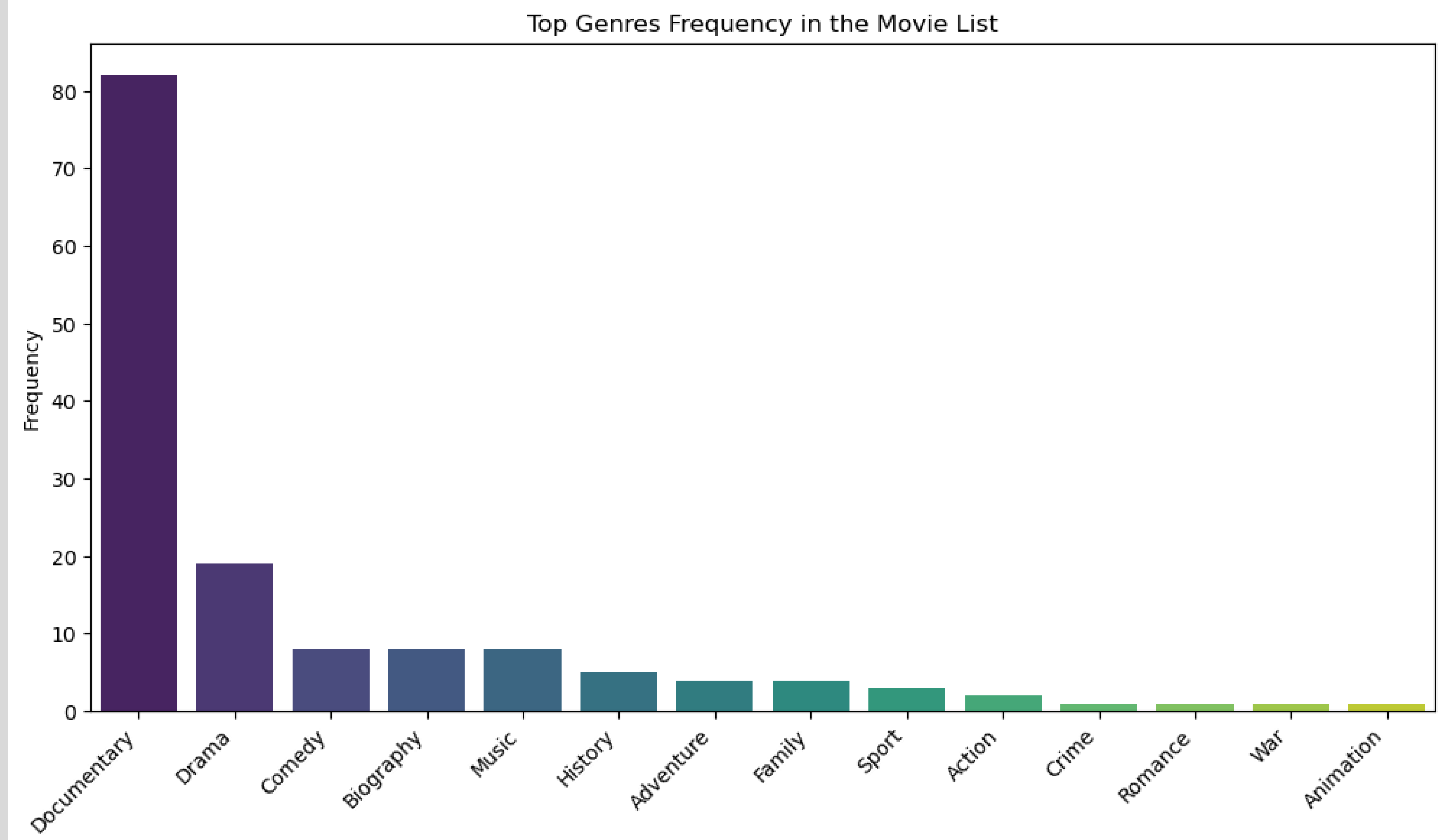
It is clear that documentaries dominate the top rated movies with dramas coming in second.

**2.** Another recommendation is to use either the BV, Universal or WB studio for film production. This can be illustrated better through the graph below that visualizes the studio performances over time.

Top 10 Studios Performance Over Time
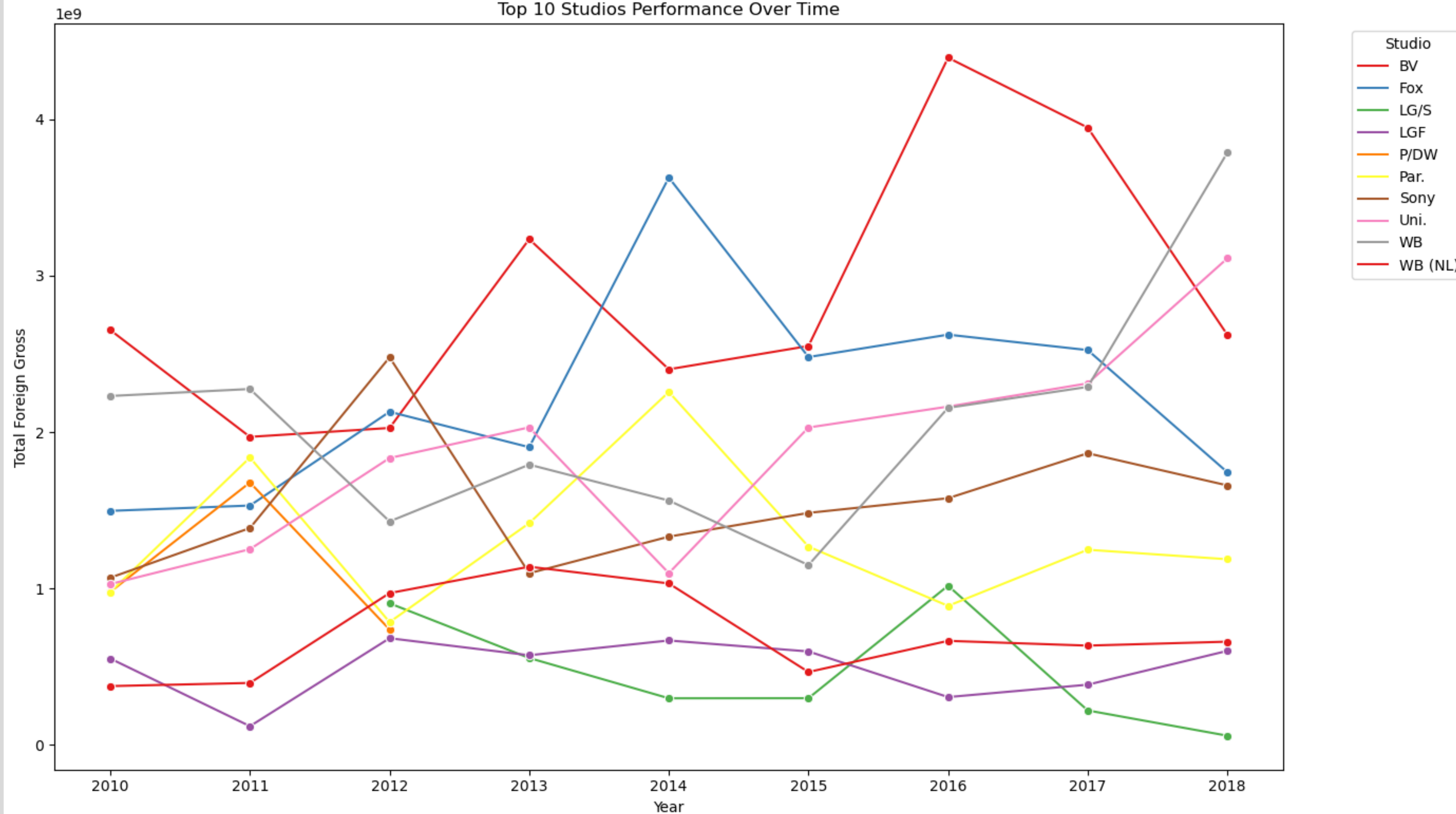
The plot above shows that BV studio has been among the leading foreign_gross earnings for studios in the last eight years despite a slight dip in the last two years. This makes it a high probability choice for studios to use.

It is also important to note that Universal and WB have also experienced a gradual rise in total foreign_gross compared to other studios that have largely stagnated.

**3.** The pool of directors provided for the top movies(although most are documentaries) is a good place to start when considering  who to direct the films. The added advantage of some of them being not only directors but also writers, actors or even cinematographers can prove invaluable depending on the film.

Director Frequency of Appearance
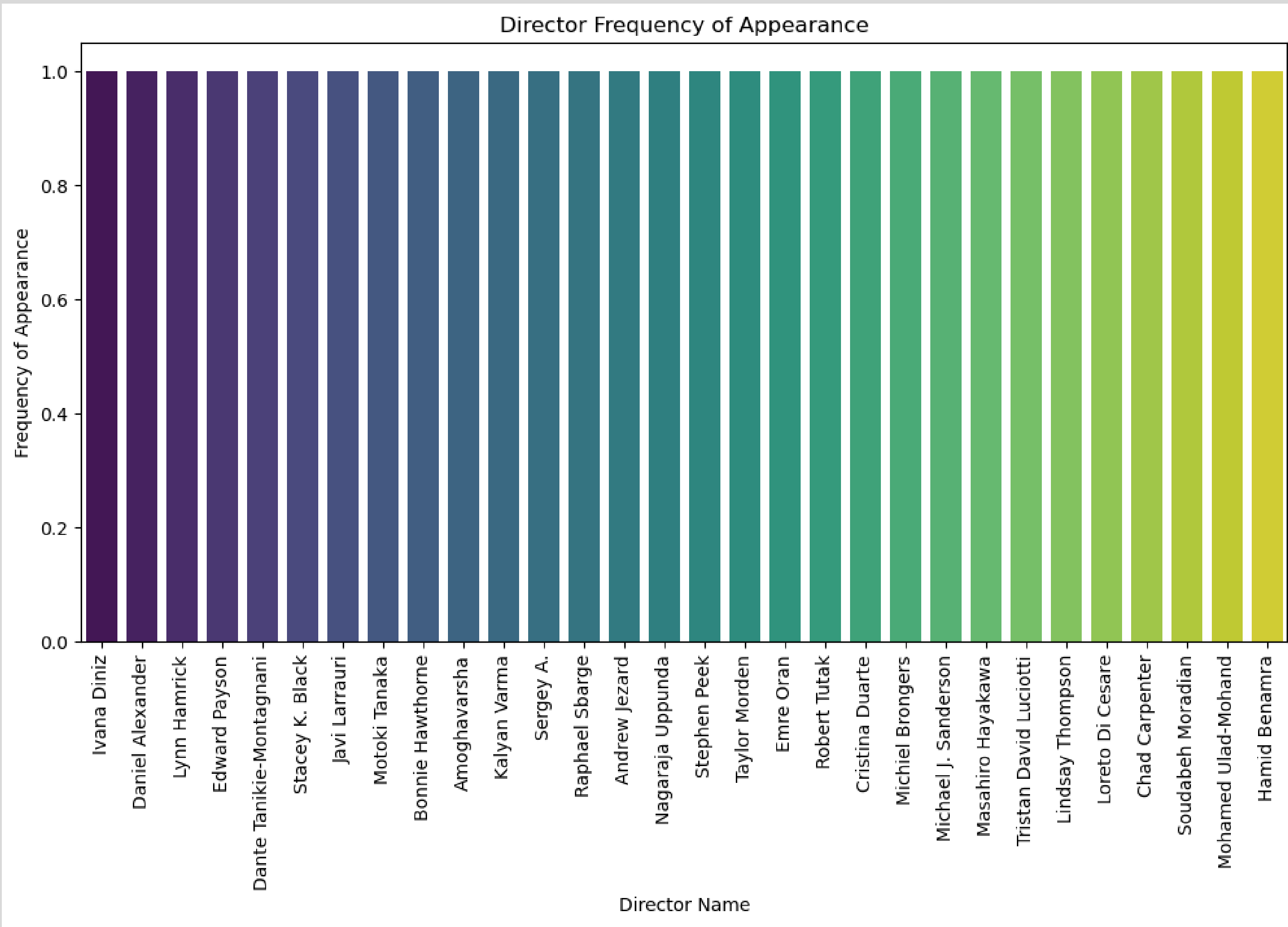
The graph above shows a graph of frequency of appearance of the directors of the top 30 films ranked according to their ratings. This list provides the top talented directors involved in the movie production industry.

# CONCLUSION

Through the recommendations stated, an informed decison can be made about the choice of studio and genre of movie. This are the starting points to consider when venturing into the film business. However, we should also note some other key points that need to be taken into consideration when going into the idustry.

Microsoft should allocate a significant portion of their investment capital to production costs since the average movie costs about 31 million dollars excluding other expenses. This means that the movie business is a large-scale operation and if done well and under the right conditions can have huge returns evident by the minimum 1 billion dollars in profit for the top ten most profitable films.