

# From Script to Screen: Analyzing Adaptations in Cinema

*Project Overview: Data Analysis for a Movie Dataset*



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## 1. Introduction

The movie industry is a multi-billion dollar sector that produces thousands of films each year, spanning a wide array of genres, production companies, and creative directions. This analysis aims to uncover key insights into the factors that contribute to a movie's success, both commercially and critically. By exploring various attributes such as budget, revenue, genre, ratings, and production companies, we can better understand what drives a film's performance in the marketplace.

In this analysis, we'll dive into a dataset of over 4,800 movies to uncover trends, patterns, and insights that can help us better understand the film industry. We'll explore questions such as:

- Which genres are the most profitable?
- Do movies with big budgets always perform well at the box office?
- Are there any correlations between a movie's rating and its revenue?
- Which actors and directors are associated with the most successful films?

Using data visualization and business intelligence tools, we'll analyze the dataset to identify key drivers of success.

## 2. Dataset Overview

Our dataset consists of 4,801 movies released between 1916 and 2016, with information on:

- **Title:** The name of the movie.
- **Year Released:** The year the movie was released.
- **Genre:** The genre(s) of the movie.
- **Budget:** The estimated budget for producing the movie.
- **Revenue:** The total revenue generated by the movie.
- **Vote Average:** The average rating given by viewers.
- **Production Companies:** The companies involved in producing the movie.

The dataset spans multiple decades, providing a comprehensive view of the evolving trends in the film industry.

### 3. Exploratory Data Analysis (EDA)

#### 3.1 Genre Distribution

The genre distribution reveals that Drama, Comedy, and Thriller are the most common genres. These genres are also typically associated with high-budget films, however, the top 3 genres by average revenue are Animation, Adventure, and Fantasy, with average revenues exceeding 200 million each suggesting a significant investment in popular genres.

#### 3.2 Budget and Revenue Analysis

- **Top-Grossing Movies:** The highest-grossing films in the dataset include *Avatar* (2009), *Titanic* (1997), and *The Avengers* (2012). These films also had some of the highest budgets. Although this may indicate a correlation between budget and revenue, the correlation coefficient of  $2.4270143958887464e-20$  between the two variables is an extremely small value, indicating that there is essentially no correlation between the two variables (budget and revenue). This means that the budget and revenue values do not tend to move together in a predictable way, and there is no significant linear relationship between them.
- **Budget Efficiency:** *Jurassic World* (2015) stands out for its relatively lower budget compared to its high revenue, indicating a more efficient use of resources.

#### 3.3 Rating Distribution

With the average rating of 6.2, and most films receiving a rating between 6 and 8, this suggests that while many films are well-received, only a few achieve exceptional ratings.

#### 3.4 Production Companies

- **Top Production Companies:** Warner Bros., Universal Pictures, and Paramount Pictures are among the top production companies in terms of the number of movies produced. These companies also have the highest-grossing films in the dataset.

### 3.5 Year of Release

An analysis of the year of release shows that more recent films (post-2000) tend to have higher budgets and revenues, reflecting the growing scale of movie production in the 21st century.

## 4. Correlation Analysis

A correlation analysis was conducted to explore the relationships between different variables:

- **Budget vs. Revenue:** There is a correlation coefficient of  $2.4270143958887464e-20$  which is an extremely small value, indicating that there is essentially no correlation between the two variables (budget and revenue). This means that the budget and revenue values do not tend to move together in a predictable way, and there is no significant linear relationship between them.
- **Vote Count vs. Vote Average:** The correlation coefficient of 0.34 suggests a moderate positive relationship between the number of reviews and average ratings, implying that movies with more reviews tend to have slightly higher ratings, though the relationship is not particularly strong. This indicates that there are many other factors influencing the rating beyond just the number of reviews. This is expected, as movie ratings are influenced by a complex array of factors, such as the movie's genre, director, cast, plot, and overall quality.
- **Budget and Rating:** The correlation coefficient of  $3.64e-14$  is an extremely small value close to zero. This suggests that there is no significant linear relationship between the two variables (budget and rating) in the dataset. In other words, the correlation coefficient is indicating that the budget and rating variables are essentially unrelated, and changes in one variable do not tend to be associated with changes in the other variable.
- **Movie Runtime and Rating:** The correlation coefficient of  $7.394180314011995e-06$  suggests that there is no significant linear relationship between the movie runtime and rating. This means that the movie runtime and rating are not significantly related, and changes in one variable do not tend to be associated

with changes in the other variable.

## 5. Insights and Recommendations

### 5.1 Insights

- **Genre Impact:** Animation and Adventure genres dominate in terms of revenue, suggesting that investment in these genres could be more likely to yield high returns.
- **Budget Considerations:** Efficient budgeting, as seen with *Furious 7*, can also result in substantial profits.
- **Production Companies:** Established production companies with a track record of successful films continue to lead in the industry, possibly due to their extensive resources and experience.

### 5.2 Recommendations

- **Investment in High-Performing Genres:** Producers should consider focusing on Animation, Adventure and Fantasy films to maximize box office performance.
- **Balanced Budgeting:** While it's important to invest in a film's production, finding a balance that allows for high quality without excessive spending can lead to higher profitability.
- **Strategic Partnerships:** Collaborating with top production companies can provide the necessary support and resources to ensure a movie's success.

## 6. Conclusion

This analysis provides valuable insights into the factors that contribute to a movie's success. By understanding the relationships between budget, genre, production companies, and other factors, stakeholders can make more informed decisions that enhance their chances of producing a blockbuster hit.