

Final Project Report



School of Advanced Technology

ALGONQUIN COLLEGE OF APPLIED ARTS AND TECHNOLOGY

Analysis of Movie Sales and Trends: Insights for Strategic Market Entry

Instructor: Prof. Siju Philip

December 12, 2024

Team Members:

- **Team Leader:** Arasu Ragupathi
- **Data Analyst:** Nithish Hullathy Prabagharan
- **Designer:** Ken Biju Jacob

Table of Contents

- 1. Abstract**
- 2. Introduction**
- 3. Background**
- 4. Methodology and Analysis**
 - a. Data Collection
 - b. Data Preparation
 - c. Visualization
- 5. Results**
 - a. Findings from Historical Data
 - b. Correlation Insights
 - c. Seasonal Impact
- 6. Conclusion and Recommendations**
 - a. Conclusion
 - b. Recommendations
- 7. Future Research Directions**
- 8. References**
- 9. Appendix**

Abstract

This report examines movie data to provide insights into the profitability and popularity of films over the last decade. Using data from Box Office Mojo, IMDb, and TMDB, we analyze trends in genres, budgets, and revenues to offer actionable strategies for ABC's market entry into the movie industry. Our findings highlight that Animation and Adventure movies deliver high ROI, while Horror films succeed with lower budgets. Seasonal release timing significantly influences revenues, with summer and winter being optimal periods. This analysis equips stakeholders with data-driven strategies to optimize investments and content creation in the competitive movie industry.

Introduction

Objective:

This study identifies trends in movie success to guide ABC's strategic entry into the movie industry.

Key Questions:

- What types of movies have been most successful over the past decade?
 - Profitability: Revenue vs. Budget
 - Popularity: Ratings, reviews, and audience engagement

Significance:

- Minimizes risks for ABC by identifying profitable opportunities.
- Aligns investments with market trends and audience preferences.
- Supports the creation of data-backed strategies for content production.

Background

Industry Context:

The global movie industry generates billions annually, with profitability driven by genre trends, audience preferences, and effective budgeting. Successful studios rely on data analytics to navigate risks and make informed decisions in this competitive space.

Focus of Analysis:

- Post-2010 movies with medium to high budgets.
- Trends in genres, revenue, and popularity metrics.
- Factors affecting profitability and audience reception.

Methodology and Analysis

Data Collection:

- **Sources:**
 - TMDB Dataset (27,576 movies from 1930–2020)
 - Movie Budget Dataset (5,800 movies from 1915–2020)
- **Final Combined Dataset:**
 - 1,760 movies (1946–2019) focused on post-2010 medium-to-high-budget films.

Data Preparation:

- **Cleaning:** Addressed missing values, split genres, and created new metrics.
- **Outlier Management:** Ensured data integrity for accurate analysis.
- **Tools:** Python (Pandas, Matplotlib, Seaborn), Power BI, SQL Server.

Visualization:

- **Trends:** Correlation heatmaps, revenue distributions.
- **Metrics:** Popularity vs. revenue, seasonal release impact.

Results

Findings from Historical Data:

1. Top-Grossing Genres:

- a. Adventure, Action, and Comedy lead in revenue.
- b. Animation delivers the best ROI, while Horror excels with low budgets.

2. Popularity and Revenue Correlation:

- a. Higher popularity generally correlates with higher revenue, although quality remains crucial.

3. Seasonal Impact:

- a. Summer and Winter releases generate the most revenue.

Correlation Insights:

- Popularity increases with budget, but vote ratings remain independent, highlighting the role of quality.

Genre Success Patterns:

- Romance and Family movies balance returns and popularity, outperforming Horror in some aspects.
- Studios with diversified portfolios achieve consistent success.

Conclusion and Recommendations

Conclusion:

Movies with higher popularity and blockbuster budgets dominate in profitability, while low-budget Horror films yield strong ROI. Adventure, Animation, and Action lead in revenue, with strategic timing enhancing success. Studios benefit by diversifying across genres and budgets to mitigate risks and sustain growth.

Recommendations:

1. Release Timing:

- a. Focus on Summer and Winter for maximum revenue potential.

2. Genre Strategy:

- a. High-budget investments: Animation, Adventure, and Sci-Fi.
- b. Low-budget focus: Horror movies for reliable ROI.

3. Diversification:

- a. Balance risk by producing movies across a variety of genres and budgets.

Future Research Directions

- **Incorporate Additional Variables:** Marketing spend, director quality, and runtime.
- **Regional Analysis:** Address gaps in geographical revenue data for targeted releases.
- **Sentiment Analysis:** Explore audience preferences using reviews and social media data.

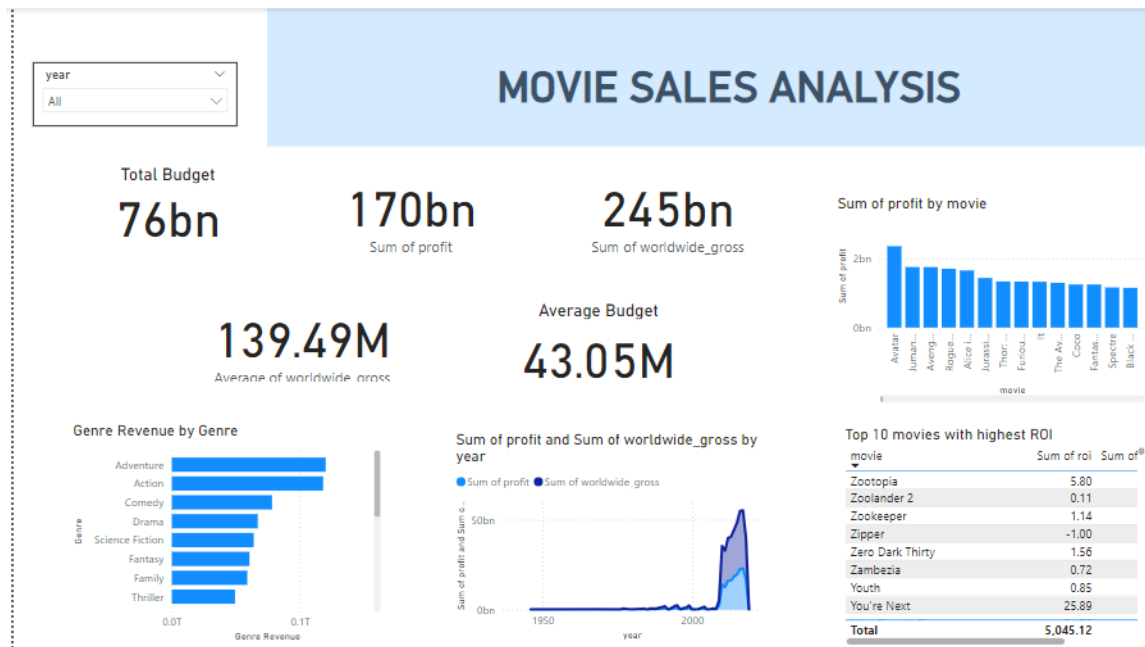
References

1. Box Office Mojo. "Historical Movie Data." [Online]. Available: boxofficemojo.com.
2. TMDB. "Movie Data and Reviews." [Online]. Available: themoviedb.org.
3. Kaggle. "Movie Budget and Revenue Datasets." [Online]. Available: kaggle.com.

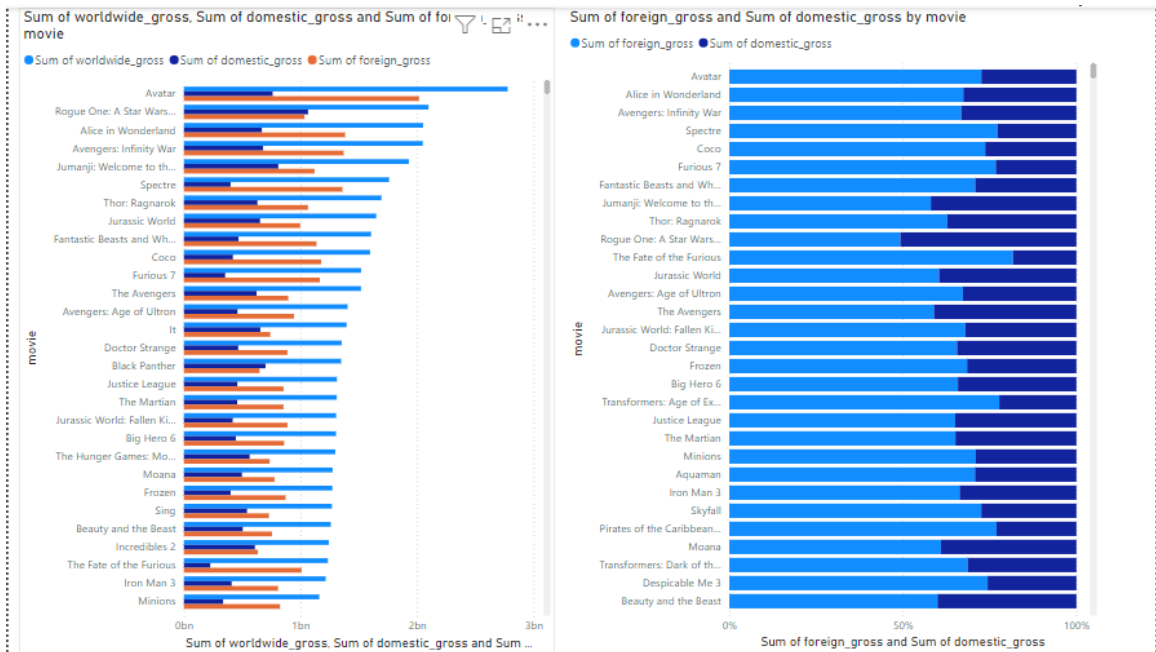
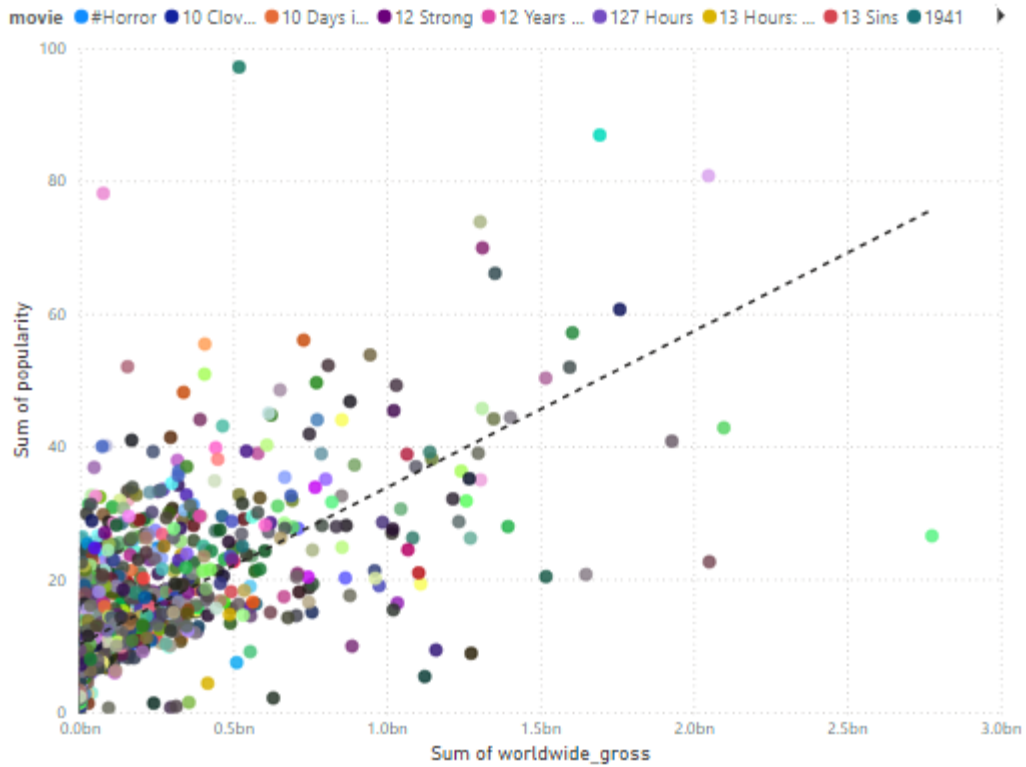
Appendix

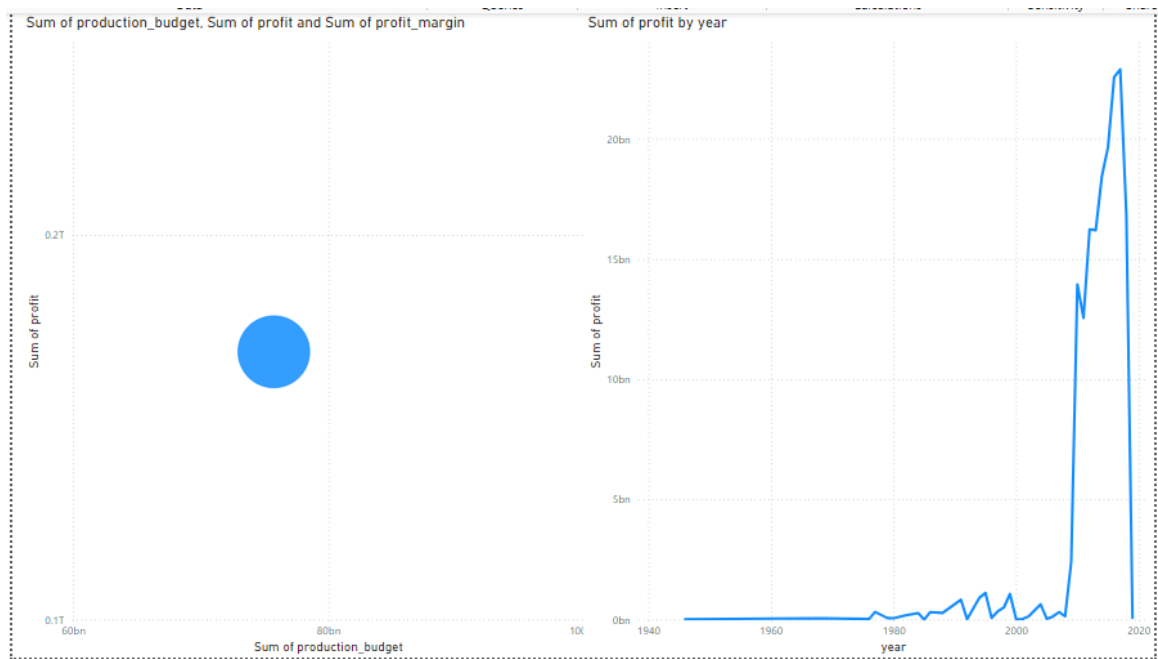
Graphs and Visualizations:

1. Dashboard
2. Popularity vs. Revenue Correlation
3. Foreign gross vs Domestic gross along with total gross
4. Budget, Profit margin and Profit over the years
5. Seasonal Impact on Revenues
6. Popularity vs Worldwide gross

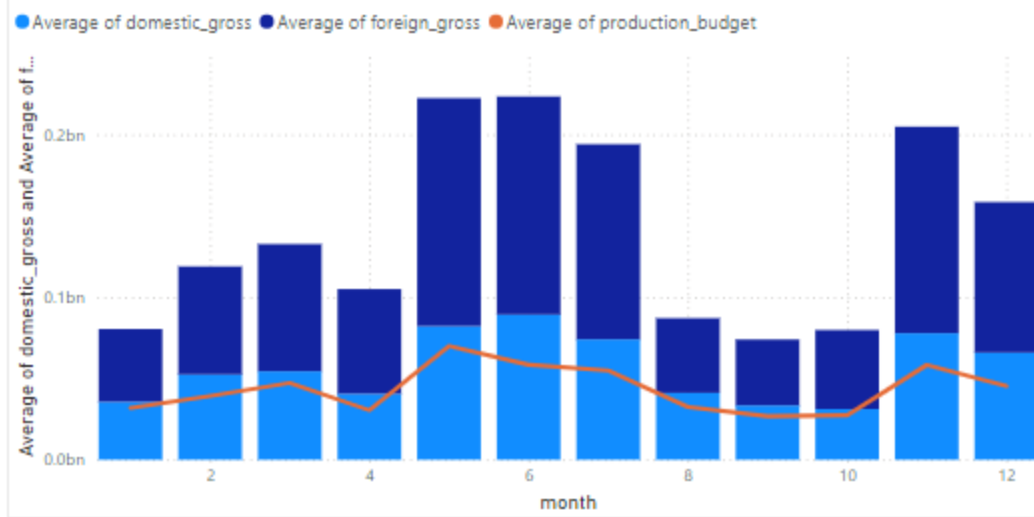


Sum of worldwide_gross and Sum of popularity by movie





Average of domestic_gross, Average of foreign_gross and Average of production_budget by month



Median of roi by month

