

# **Data Report: Movie Studio Insights**

## **Overview**

This report summarizes findings from an exploratory data analysis aimed at guiding a new movie studio in choosing film types likely to succeed at the box office. Data sources include Box Office Mojo, IMDB, Rotten Tomatoes, TMDB, and The Numbers.

## **Business Understanding**

The company intends to launch original video content but lacks prior industry knowledge. This analysis addresses:

- Which genres achieve the highest revenue?
- How budgets influence ROI (Return on Investment)
- The relationship between audience ratings and box office success
- Seasonal impacts on film profitability

## **Data Understanding & Preparation**

- Combined multiple datasets and converted revenue and budget figures to numeric formats.
- Removed duplicates, handled missing data with medians, and extracted release months.
- Standardized genres, focusing on the primary genre per movie.

## **Key Findings**

### **1. Revenue by Genre:**

- Action, Adventure, and Sci-Fi films consistently generate the highest global revenue.
- Comedies and dramas earn less comparatively.

### **2. ROI (Return on Investment):**

- Animation and Horror often produce high ROI due to modest budgets and strong audience appeal.
- Higher spending does not guarantee greater returns.

### **3. Audience Ratings:**

- Weak but positive correlation ( $r = 0.193$ ) between IMDB ratings and global box office revenue.
- Drama and Documentary genres rate higher but don't dominate earnings.

### **4. Seasonal Release Timing:**

- Significant revenue differences across release months (ANOVA  $p < 0.001$ ).
- Summer and holiday seasons are peak earning periods.

### **5. Hypothesis Testing:**

- Peak months significantly outperform off-peak months in revenue.
- High-budget films deliver lower ROI than low-budget films ( $p < 0.001$ ).

## **Visual Insights**

- **Revenue by Genre:** Horizontal bar chart comparing domestic and global earnings in billions.
- **ROI Analysis:** Bar chart showing average ROI by genre.
- **Audience Ratings:** Scatter plot for ratings vs. revenue and box plots by genre.
- **Release Timing:** Bar chart displaying average monthly revenue.

## **Conclusion**

- Focus on revenue-rich genres (Action, Sci-Fi, Adventure) while leveraging cost-effective, high-ROI genres like Horror and Animation.
- Release films during peak seasons for higher returns.
- Carefully manage budgets, as spending more does not ensure success.
- Audience ratings have limited impact but should not be ignored.

## **Recommendations**

1. Invest in blockbuster genres while including high-ROI, low-budget films.

2. Release major films in peak periods (summer, holidays).
3. Maintain strict budget controls.
4. Develop franchises to maximize market reach.
5. Use audience research to align future productions with viewer preferences.