

INTRODUCTION

Members

1. Godfrey Waweru
2. Faith Kamande
3. Joy Kiboi
4. Emmanuel Ndedda

BUSINESS UNDERSTANDING.

Business Overview

Your company now sees all the big companies creating original video content, and they want to get in on the fun. They have decided to create a new movie studio, but they don't know anything about creating movies. You are charged with exploring what types of films are currently doing the best at the box office. You must then translate those findings into actionable insights that the head of your company's new movie studio can use to help decide what type of films to create.

Problem Statement

Your company now sees all the big companies creating original video content and they want to get in on the fun. They have decided to create a new movie studio, but they don't know anything about creating movies. You are charged with exploring what types of films are currently doing the best at the box office. You must then translate those findings into actionable insights that the head of your company's new movie studio can use to help decide what type of films to create.

In the evolving landscape of the film industry, our company aims to establish a new movie studio to produce original video content. However, with limited experience in filmmaking, there is uncertainty about which genres or types of films are currently achieving the most success at the box office. To ensure the studio's productions resonate with contemporary audiences and achieve commercial viability, it is essential to analyze current box office trends and identify the film genres and themes performing exceptionally well. This analysis will inform strategic decisions on the types of films the studio should focus on creating to maximize audience engagement and profitability.

Objectives

1. Understand runtime trends considering ratings.

2. Potential movie directors that have the highest audience ratings.
3. Studios with the highest returns
4. Production budget that yields the most profit return and Evaluate the Impact of Budget on Success.
5. Understand Genre Performance in terms of ratings
6. Identify Profitable Films
7. Find Seasonal or Time-Based trends.
8. Compare between the worldwide and domestic

DATA UNDERSTANDING

Sources of data

- rt_movies.tsv
- bom.movies.csv.
- rt_reviews.csv.
- im.db.
- tn_movies.csv

Inspection

- Identified the structure of datasets, including rows, columns and key variables.
- Reviewed for duplicates that might skew the analysis.
- Recognized missing values and noted areas requiring imputation or cleaning.

DATA PREPARATION

Data Cleaning

Removed unnecessary columns that do not contribute to the project objectives, ensuring focus on relevant features.

Replaced and filled missing values using imputation methods or logical assumptions to preserve data integrity.

ANALYSIS

The analysis focused on uncovering meaningful insights that address the project's objectives.

Hypothesis Testing

Test 1

Null hypothesis - There is less difference between long and short movie ratings.

Alternate hypothesis - There is a difference between long and short movie ratings.

This hypothesis was tested using statistical methods, and it was clear there is a difference between long and short movie ratings.

Test 2

Null hypothesis - There is no significant difference in foreign and domestic revenue.

Alternate hypothesis - There is significant difference in foreign and domestic revenue.

This hypothesis was tested using statistical methods, and it was clear there is a difference between domestic and foreign markets' profits.

Explanatory Data Analysis and Visualizations

An analysis was performed in respect to the objectives above and visualized using scatter plots, bar graphs and histograms to provide conclusions stated below

Objective 1 – Understand runtime trends considering ratings.

- It is advisable for the movie studio to highly consider venturing into movies with shorter run time as the longer the periods the lower the ratings.
- It is also advisable for the movie studio to venture into genres such as Dramas and Documentaries as from the analysis above, these genres earned the spot as the most popular genres over others such as Adventures, Biographies and Crime movies.

Objective 2 – Potential movie directors that have the highest audience ratings

- From the analysis we can conclude that Robert Tutak, Taylor Morden and Michiel Brongers are the top-rated Directors in the film industry.
- We can therefore recommend partnering with them in various projects.

Objective 3 – Studios with highest returns.

- From the analysis above it indicates that BV studio generates the highest revenue worldwide followed by Fox and WB.
- We can therefore recommend considerations ,partnerships and building business models considering these studios.

Objective 4 - Production budget that yields the most profit return and Evaluate the Impact of Budget on Success.

- The analysis used the budget and worldwide gross to find the returns on the movies produced by various studios.
- From the analysis, we came to a conclusion that the movies with the lowest budgets recorded higher returns.
- This therefore means that for the studio to gain high returns it is not necessary for them to spend a lot in production as less budgets produce higher returns

Objective 5 - Compare between the worldwide and domestic patterns which one has more profitable market

- From the analysis, movies that focused on the foreign market recorded higher profits than those that focused on the domestic market.
- We can therefore recommend the studio to focus more on the foreign markets.

Objective 6 - Understand Genre Performance in terms of ratings

- Drama and Comedy are highly produced but not the highest rated.
- From the observation made the films/movies should Focus on quality, niche genres for loyal audiences and popular genres for broader reach.
- Documentary and Drama dominate in number of movies produced over 50,000, meaning they are the most engaged genres by creators.
- Genres like Short and Game Show, which are highly rated, do not even appear in the top 10 most common meaning they might have higher audience satisfaction but lower production volume which means its an open market.

Objective 7 – Identify profitable films

- Marvel's The Avengers appears in both the domestic and foreign top 10 meaning it has a huge worldwide appeal thus very profitable.
- Profitable films are often franchise-based, family-friendly, superhero-related, and supported by strong international appeal.
- We can therefore recommend considering the franchise-based, family-friendly and superhero-related movies/Films.

Objective 8 - Find Seasonal or Time-Based Trends

- May, June and July have fewer movies being released but have relatively higher revenue income and would therefore recommend the company to consider creating a film during these months due to low traffic from newer movies but still maximize the profits
- Movies released in November and December have higher revenue generation compared to other months. i would therefore recommend the company to consider releasing their movies during these months.

MODELLING

Model 1

Evaluating the impact of budget on movie success

The linear regression model created showed a direct relationship between movie budgets and profits where a higher budget results to higher profits.

We tested the model and got an R^2 value of 0.3706 indicating that approximately 37.06% of the variability in movie profits can be explained by the production budget using this linear regression model.

Model 2

Understanding Runtime trends considering ratings

The linear regression model created showed an indirect relationship between runtime and average rating where movies with higher runtimes recorded lower ratings.

We tested the model and got an R^2 value of 0.1 indicating that approximately 10.00% of the variability in movie ratings can be explained by the movie runtime using this linear regression model.

This means that 90% of the variability is explained by other factors not in the model.

RECOMMENDATIONS

1. Genres and runtimes based on ratings
 - Profitable films are often franchise-based, family-friendly, superhero-related, and supported by strong international appeal.
 - We can therefore recommend considering the franchise-based, family-friendly and superhero-related movies/Films.

- It is also advisable for the movie studio to venture into genres such as Dramas and Documentaries as from the analysis above, these genres earned the spot as the most popular genres over others such as Adventures, Biographies
2. Preferable markets based on domestic and foreign returns;
 - From the analysis above, movies that focused on the foreign market recorded higher profits than those that focused on the domestic market.
 - We can therefore recommend the studio to focus more on the foreign markets.
 3. Movie production features: directors, budgets and release dates –
 - From the analysis, we concluded that the movies with the lowest budgets recorded higher returns..
 - This therefore means that for the studio to gain high returns it is not necessary for them to spend a lot in production as less budgets produce higher returns It is advisable for the movie studio to highly consider venturing into movies with shorter run time as the longer the periods the lower the ratings as shown above.
 - From the analysis we can conclude that Robert Tutak, Taylor Morden and Michael Brongers are the top-rated Directors in the film industry. We can therefore recommend partnering with them in various projects.
 - May, June and July have fewer movies being released but have relatively higher revenue income and would therefore recommend the company to consider creating a film during these months due to low traffic from newer movies but still maximize on the profits.
 - Movies released in November and December have higher revenue generation compared to other months. I would therefore recommend the company to consider releasing their movies during these months.