

# Abstract

## Hypothesis:

Movies have become a huge part of human culture. We sought to investigate how different elements such as audience ratings, budget allocations, and language impact the reception and success of movies with three main hypotheses:

1. Audience ratings for movies average around 7 out of 10.
2. Budgets differ significantly between movies with high and low popularity ratings.
3. Movies released in English receive higher average ratings compared to movies in other languages.

## Data:

We combined multiple datasets from kaggle into one ensuring a robust sample by including a diverse range of films. Our data table consisted of the following columns of interest: vote\_average, revenue, popularity, genre, budget, runtime, and original\_language. Special attention was given to cleaning and structuring the data using sql queries to extract the columns required for our statistical tests.

## Findings:

**Claim #1:** The average audience is significantly lower than 7.

**Support for Claim #1:** Utilizing a one-sample t-test, we found the mean audience rating to be significantly different from 7, calculated to be 6.44 ( $p\text{-value} < 0.001$ ), strongly rejecting our null hypothesis.

**Claim #2:** There is a significant difference in budgets between movies with high and low popularity.

**Support for Claim #2:** Through a two-sample t-test, we confirmed significant differences in the budget allocations between these groups, suggesting that higher budgets are possibly associated with higher expected popularity and returns ( $p\text{-value} < 0.001$ ).

**Claim #3:** Movies released in English do not have higher average ratings compared to those released in other languages.

**Support for Claim #3:** Another two-sample t-test indicated no significant difference in ratings between English and non-English movies ( $p\text{-value} = 0.539$ ), suggesting that language alone might not be a substantial factor in influencing movie ratings.

## Conclusion:

Our analysis provided insights into the dynamics of movie ratings and budgets with respect to audience preferences and production strategies. The findings suggest practical implications for movie producers in budgeting and language selection strategies. Our rigorous statistical approach ensures confidence in these insights, despite some hypotheses not being supported by the data.