Introduction

Most common people do not understand how box office or ticket sales work, one may assume that the more money you pour into the movie becomes profit, which is incorrect. When most companies make a movie, they either stay safe and invest less, or largely invest and hope for a blockbuster. What most people do not realize is that the film industry can be considered a gamble.

Production budget and availability is one of the most important factors for a film, but higher budget does not always equal higher ticket sales. According to data scientist Randy Olson, there is a weak correlation between production budget and ticket sales, but there is still a correlation1. Analyzing the sales data of over 11,000 films, Olsen makes the claim that “the more that’s spent on film production, the less likely the film will end up making that investment back.”1 When companies invest more into a movie, the outcome can be gamble as movies can either be a complete hit or an utter flop.

When researching what causes a film to draw in consumers, what does the consumer research to determine the quality of the film? Critical reviews are readily available before a movie is released to inform consumers of the movie’s quality, but does this have an affect on ticket sales? Alec Kennedy’s article, “Predicting Box Office Success: Do Critical Reviews Really Matter?” acknowledges this query using data from over 200 films released in 2007 comparing box office gross and Metacritic score2. Using his research, Kennedy then concluded that when a film has a great critical score, it shows in ticket sales, although it may not be because of the review2. Kennedy makes the conclusion that critical reviews are not near as important as marketing and advertisements, as a consumer will have heard of a movie from marketing and then find a review for the film to decide whether to attend or not2. Great reviews for the newest blockbuster movie seem to assist its box office gross some, but it is not as significant as an advertisement to decide for the consumer whether they want to purchase a ticket or not.

[MAY ADD PAR. ABT TRAILERS AND ADS]

What determines a film’s box office success? Through the use of a neural network, the answer may be found by comparing the correlations between inputs and what truly affects the outcome. Although to simplify the process of data-collecting and input, the output will determine the success of the opening domestic box office weekend.

The neural network is made in python, using multiple libraries. The data was collected from multiple box office websites including the-numbers.com and boxofficereport.com which contains precise numbers for variables like production budget, theater count, and trailer view counts from YouTube. Collecting data for reviews became very simple using Rotten Tomatoes percentages, which is an average percentage of reviews created from numerous websites and critics which can be collected from rottentomatoes.com. After data was collected, the neural network’s accuracy was determined using certain methods and compared to other accuracies.

1. <http://www.randalolson.com/2014/12/29/does-a-bigger-film-production-budget-result-in-more-ticket-sales/>
2. <https://www.stat.berkeley.edu/~aldous/157/Old_Projects/kennedy.pdf>
3. <https://www.researchgate.net/publication/322083844_Mining_Trailers_Data_from_YouTube_for_Predicting_Gross_Income_of_Movies>