Project Proposal: IMDB Movie Anaylsis

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The dataset proposed for this analysis is the *IMDB 5000 Movie* dataset (Sun, 2016) that was obtained online from the data.world repository. The creator, Chuan Sun, was able to scrape metadata from a combination of three sources: www.the-numbers.com, IMDB.com, and the Python library, "scrapy". All together, information regarding 28 variables was obtained for 5043 movies. These observations included information from some 4906 posters, spanning across 100 years in 66 different countries, with 2399 unique director names, and thousands of actors and actresses. Social media content, specifically related to the Facebook likes of the movie and its cast and crew were also included. This dataset offers an interesting insight into possible relationships between movie charateristics such as where, when and by who it was made, and how the movie is perceived by the public on social media.

In order to be considered multivariate, a dataset needs to meet two criteria. Firstly analyses are based on more than two variables per observation and secondly the relationships between variables are not univariate, but rather there are a combination of relationships between variables.

In the case of the *IMDB 5000 Movie* dataset, there are clearly multiple variables to work with, hence, fulfilling the first basic criteria to be multivariate. Further to this, there is reason to believe that the relationships between certain variables are more complex than being simply univariate and there may be an underlying structure in the data, whether it be a correlation between multiple variables or an unexplained trend. This suggests that it may be inappropriate to model any particular response type variable in the dataset with typcial modeling methods, such as a linear or generalised linear model. Rather, we would prefer to uncover these interconnected relationships using more appropriate multivariate methods such as PCA or clustering algorithms.

There have been many cases when movie critics have given poor reviews and yet the movie has gone on to be a box office success. This gives us more reason to believe that there is additional structure in the dataset which hopefully can be explored using the social media related covariates. By combining the analysis of the continuous variables with the factor variables, we hope to uncover any such hidden structures.

Due to the increasing popularity of social platforms, the social media campaign has now become an important marketing tactic in the movie industry. Previous research, such as Pardo's paper (2013), found that social media has a great impact on movie qualitatively. In this study, we aim to investigate the quantitative relationship between social media and movie performance such as box office and movie ratings.

Further to this, we aim to explore the relationships among film box office grosses, budget and the country of origin. Hollywood's stereotypes seemingly dominate in reality, while most films around the world are produced from English-speaking countries. In the wave of globalisation and with the popularity of social media nowadays, we wish to evaluate how the diversity in film industry behaves. **Regarding inter-country, or in a broader sense, inter-continent differences, we think that a principle component or cluster analysis would be a good starting point.** The characteristics of the mainstream film in various countries should reflect the colour of their culture. We also would like to have a glimpse into the niche markets for film industry. These films of interest could be non-mainstream, low-budget or independent film. We would examine if these films could satisfy specific market needs.

Figure 1 displays three scatterplots that show the relationship between the Facebook likes received by the director and IMDB score, the number of users that voted and the duration of the movie. The plots indicate that there may be distinct groups relating to a lower and higher number of director Facebook likes. However, it is not clear what may be causing these groups. Through further analysis of these relationships, and other similar relationshps, we aim to uncover hidden multivariate trends between social media and movie characteristics.

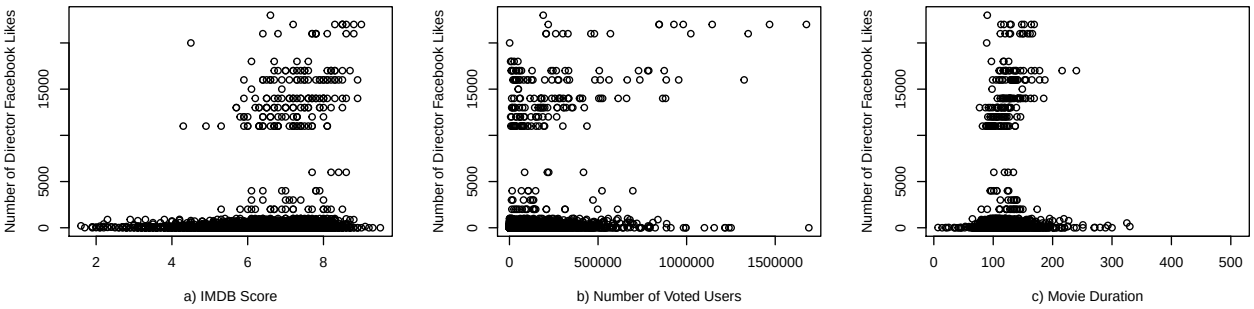

Figure 1: Paired Scatterplots of The Number of Director Facebook Likes and Various Movie Characteristics

Reference List

Pardo, A., 2013. Digital Hollywood: How Internet and Social media are changing the movie business. In Handbook of Social Media Management (pp. 327-347). Springer, Berlin, Heidelberg.

Sun, C., 2016. IMDB 5000 Movie Dataset. data.world. e675d8a8. Available at: https://data.world/popculture/imdb-5000-movie-dataset.