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Marketing Analytics 95-832

Assignment 2: Movie Topic Modeling

3/29/2019

Gotham Group is preparing to launch Maze Runner, a new dystopian film based on James Dashner’s 2009 novel. Our group has been tasked with identifying the most opportune week of 2014 to launch the movie. Heuristic approaches have traditionally been used to choose release dates, taking advantage of industry knowledge regarding what time of the year is ideal for certain movie genres. In this case study, we have employed a topic modeling approach. Using movie reviews, our analysis identifies which movies are categorically similar to Maze Runner, what the optimal release weeks have been for the genre over time, and what specific week Gotham Group should release Maze Runner in 2014. Our analysis shows that releasing in week xx will both maximize expected revenue and minimize competition from similar movies.

Our group has used Latent Dirichlet Allocation (LDA) to generate topic probabilities for a subset of movies released between 2006 and 2014. Ten topics were generated using tags from movie reviews, with each movie having a probabilistic distribution across the topics. The probability distribution of movies across the topics was relatively uniform (Figure 1). However, if one were to take a deterministic approach and assign only the highest probability topic to each movie, the distribution is more skewed (Figure 2). In this case, we can see that Animation, Drama, Comedy, and Action are the most frequent topics.

LDA does not provide topic labels by default, so one required step in our approach was to assign qualitative labels to each topic based on the output of the model. To determine the appropriate labels, we reviewed the conditional probability of each tag showing up given each topic as well as the probability of each topic showing up given each movie (Figure 3 and 4). Based on the term and topic frequencies, we assigned the following labels to topics one through ten: Thriller Drama, Action, Animation, Fantasy, Sci-Fi, Dark Comedy, Dystopia, Drama, Comedy. Maze Runner falls within the Dystopia topic, which is often described with words such as dystopia, post-apocalyptic, zombies and horror. This topic includes movies such as I am Legend, The Road, The Book of Eli and Limitless.

**Appendix**

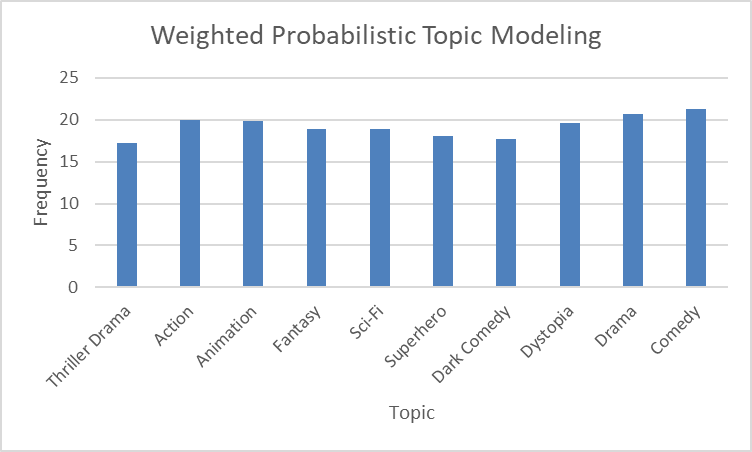


Figure 1

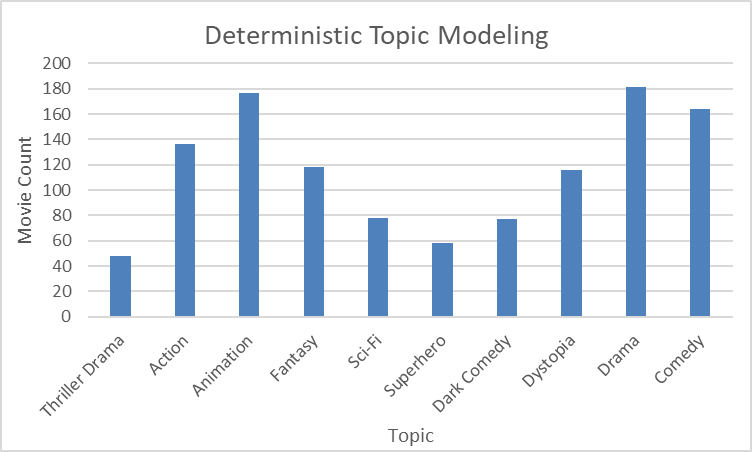


Figure 2

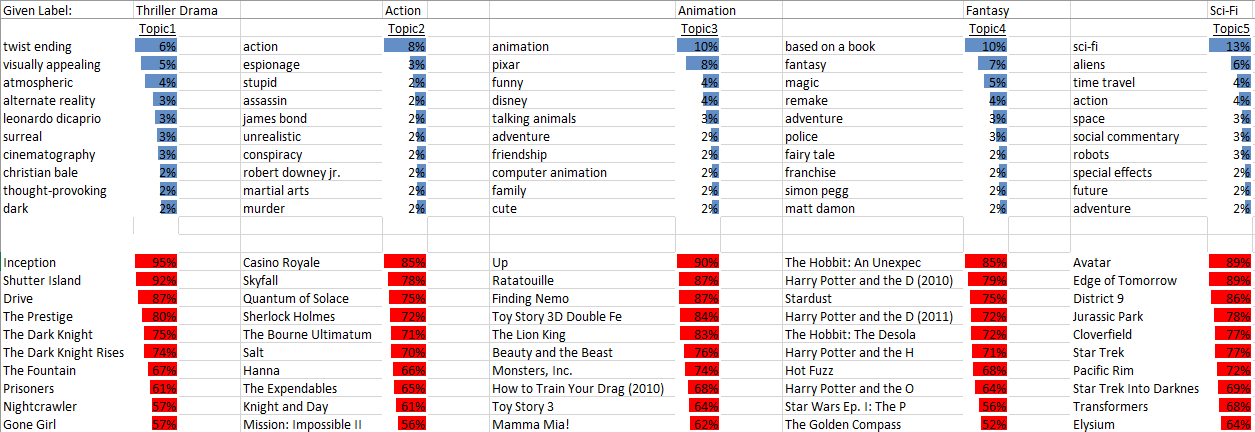


Figure 3

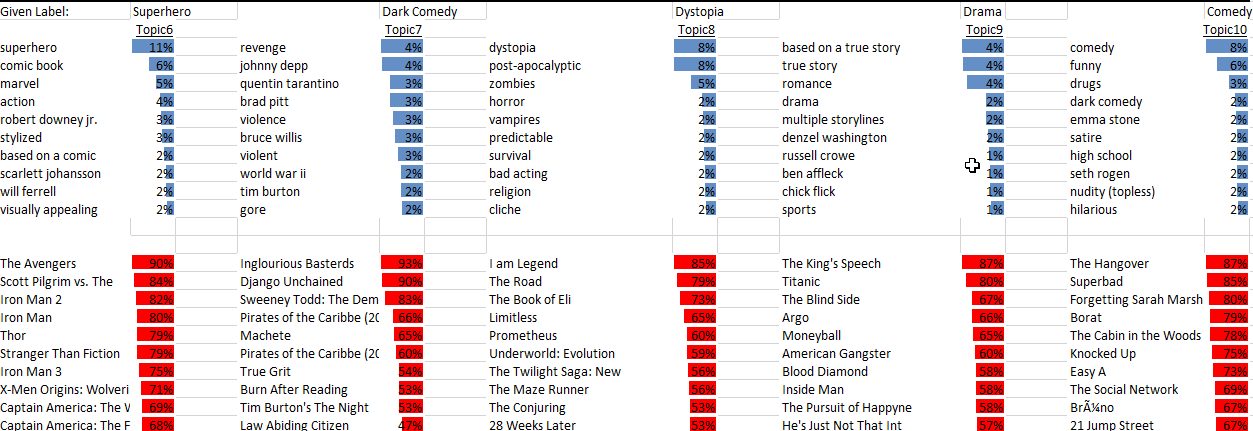


Figure 4