



Video Recommender System for an Online Video Community

Business Problem

Our client is an online video start-up, providing a self-learning platform where teachers can upload short videos. They wanted to increase viewership of the videos by implementing a video recommender system for the online video community.

Challenge

User adoption is in nascent stages as the platform was launched in the recent past. As a result, the data provided to us was very sparse (sparsity index being around 99%). Also, the website currently recommended videos based on a single rule, so a lot of viewership patterns observed in the data were biased.

Solution

We used traditional techniques to analyze the problems encountered. Given the extremely sparse nature of the data, some failed while others performed well. Limited data meant we had to be doubly careful about robustness.

Item-based collaborative filtering performed reasonably well. Since the videos were tagged, we were able to bake in the tag information into the recommendation system. We noticed that because of existing recommendations on the website, the recommendations from the above steps belonged to the same author or lesson series. To help discover videos beyond this, we introduced some randomness, aiming to expose users to a broader range of videos.

The final solution was a hybrid of three types of recommendations:

Generic Item-based Collaborative Filtering

Here we computed various distance metrics between lessons (using viewership data) to identify how likely a user was to watch a video given that they watched another video.

Within-Tag Collaborative Filtering

Here we recommended a video with the same tag. The methodology is similar to the above, but with a different threshold for the distance metric.

Random Popular Recommendation

We identified a list of popular videos and randomly selected one of them to be recommended to a user.

Different thresholds were set on the distance metric so as to remove results because of existing video recommendations.

Impact

We estimated a lift of 20% in video viewership (views per user) as a result of the new recommender system.

About Tiger Analytics

We are an advanced analytics consulting firm. We combine our quantitative modeling expertise with deep understanding of business needs and state-of-the-art technologies to solve complex problems.

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