Recommendation Technique

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Abstract: *This technique in today's world is very important. Recommender systems are a useful alternative to search algorithm since they help users discover items they might not have found by themselves. A user who is interested in buying certain product might be interested inother product which is under same umbrella of products category recommended to them using this technique.*

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1. Introduction

Recommender techniques are information agents that attempt to predict which items out of a large pool a user may be interested in and recommended the best ones to the target user. A recommender system can be defined as "any system that produces individualized recommendations as output or has the effect of guiding the user in a personalized way to interesting or useful objects in a large space of possible options.

2. Characteristics

Recommendation is carried out by some kind of recommendation engine which employs a set of algorithms to compare a user profile with a set of reference characteristics. There are three types of source for the reference characteristics: Information about the items themselves (content), information about the social environment (collaborative) and information about the web usage (web analytics). Actually many tools use a mix of these techniques and they are a set of the **information filtering systems**.

2.1 Content-based-Filtering

Content based filtering uses information about the items to make recommendations. It will recommend items to a user if the items are similar in content to items that the user liked in the past. This approach allows recommendation of previously unrated items to users with unique interests and can provide explanations for its recommendations. As long as the system has some information about an item, recommendations can be mad even if the system has received a small number of ratings, or none at all. The disadvantage of this mechanism is that each item must be characterized with respect to the features that appear in the user's profile requiring modelling of each user's profile.

2.2 Collaborative Filtering

Collaborative filtering makes predictions about the interests of a user by collecting the choices or expressions of taste from many users. It finds areas of agreement between people and bases recommendations on the assumption that people who agreed in the past are likely to do so in the future. It looks for users who share the same ratings patterns with the active user, a neighborhood of similar users, and uses their ratings to create a prediction. Unlike content-based filtering, it doesn't need to know anything about the item themselves, only people's opinions about the items.

Collaborative filtering may be based on the explicit ratings of users or on implicit observation of user behavior. User behavior is observed and compared to the behaviour of other users, for example, items purchased, queries made, items printed, or music listened to. Predictions can then be made about a user's future behaviour assuming like-mindedness in the past as a predictor for future patterns of behaviour.

2.3 Item based filtering

In this section we study a class of item based recommendation algorithm for producing predictions to users. The item based data approach looks into the set of items the target user has rated and computers how similar they are to the target item **I** and then selects **K** most similar items { i1, i2, ……. ik}. At the same time their corresponding similarities items are found, the prediction is then computed by taking weighted average of the target user ratings on these similar items. We describe these two aspects, namely, the similarity computation and the prediction generation in details

3. Conclusion and Future Work

This paper focuses on a ways of recommendation methods in modeling. Such methods help in speeding up modeling process and producing less error prone models than modeling from scratch. The original contribution of the paper is introducing a categorization of recommendation approaches in modeling and short overview of machine learning methods corresponding to the presented recommendations. Our future work will focus on specifying recommendation approach for company management systems in order to enhance modeling process and evaluation of the selected recommendation methods. We plan to carry out a set of experiments aiming at testing recommendation approaches on various model sets.

References

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