A Survey of Collaborating Filtering Techniques

Recommender systems use the collaborative filtering technique which makes automatic predictions. These systems mostly collect the information about the preferences from many user in order to make the predictions. The paper discusses about the challenges that are faced in implementing the collaborative filters, types of collaborative filtering techniques and the evaluation metrics.

Some of the challenges and the characteristics of collaborative filtering are discussed in the paper. The data sparsity issue arises when the user item matrix contains a large number of product sets making the data sparse. Scalability issue occurs when we the resources needed go beyond the accepted levels.Some of the other issues include synonym, gray sheep, shilling attack etc.

There are three collaborative filtering techniques. Memory based, model based and hybrid collaborative filtering.The memory based filtering techniques use the entire or a sample of the user item database to make the predictions. The model based collaborative filtering algorithms solve the shortcomings of the memory based collaborative filtering algorithms by allowing the system to test data based on the learned models.

The predictions and the recommendations made based on the hybrid collaborative filtering technique are combined with the other techniques.

Evaluation metrics are used to test the accuracy or the precision of the models. Collaborative filtering metrics such as F1 score, mean absolute error, ROC score and many others are used to evaluate the model.