National Institute of Technology Rourkela

Defence Seminar

Seminar Title	: Development of Group Recommendation in Collaborative Framework
Speaker	: V Ramanjaneyulu Yannam (Rollno : 518cs1003)
Supervisor	: Prof. Korra Sathya Babu
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Abstract	: Recommender systems provide personalized suggestions to users regarding products and services. These recommendations are generated for individual users only. However, group activities have recently become more popular, such as watching TV with friends and having dinner with group members. Therefore, this requires a recommendation for a group of users. The group recommendation system (GRS) suffers from cold starts and data sparsity issues. This thesis proposes a GRS that will handle the cold start and data sparsity. Two approaches are discussed. Firstly, aggregate group prediction is based on the group's individual prediction information. Secondly, the aggregate group model is determined by aggregating personal user preferences. GR Slope One produces relevant results faster and more efficiently at query time in both approaches. Promising results are obtained as compared with state-of-the-art methods. Furthermore, existing methods disregard the metadata information while predicting the rating information. Therefore, the proposed approach used metadata information for prediction. It presents a rating prediction for groups that leverages multilayer perceptrons, general matrix factorization using metadata, and neural collaborative filtering techniques. However, deep collaborative filtering could generate an improvement in efficiency. It has some pitfalls. Firstly, it considers all the members in the group to have equal priority. Secondly, preference aggregation is not considered. Later, group recommendation using the attention mechanism model (GRAM) is built and optimized to address the issue of preference aggregation, which uses a neural attention network and a neural collaborative filtering framework. The attention component is used to capture the effect of every member within the group. In addition, a neural collaborative filtering framework is utilized to learn the group-item interactions in the data. It strengthens not just the performance of the group recommendations but also their user recommendations, particularly for the cold-start scenario. Later Propose a preference network-based approach. It performs prediction based on weighting individual users in linear preference. The weight computing is based on the node centrality score. Multiple centrality techniques are analyzed for score calculation, introducing two new modeling strategies, namely Hybrid1 and Hybrid2. This study uses two metrics group satisfaction metric (GSM) and satisfaction error for a group (SEG) to improve member satisfaction and generate recommendations for groups. The proposed technique outperforms the state-of-the-art group recommendation models.