

Merging Pearson Correlation and TAN-ELR Algorithm in Recommender System

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Abstract	<p>The selection of lecturers in a university is done every semester. In general, the selection process has a high degree of subjectivity, considering the selection of a lecturer for a particular course is made based on decision maker sourced from the history of the course and the request of the concerned lecturer. With the recommender system, the selection of lecturer for teaching certain courses can be done systematically without any subjectivity. Recommender system is a system which able to provide a recommendation to the user on several items, such as music, videos, movies, books, and so on. There are several algorithms with low error rate and high degree of accuracy to be implemented in the recommender system, such as Pearson Correlation and TAN-ELR algorithm. However, Pearson Correlation as memory-based collaborative filtering has a lack of sparsity data while TAN-ELR as model-based collaborative filtering has a deficiency in terms of scalability. To overcome the lack of sparsity in Pearson Correlation and scalability in TAN-ELR, merging these two algorithms is done by hybrid collaborative filtering method. It is done by weighting each algorithm using Joint Mixture Voter method. For test in the method, Mean Absolute Error (MAE) is calculated to estimate the accuracy of the built recommender system. The results show the larger the amount of training data, the lower the MAE value of the Pearson Correlation algorithm and the higher the MAE value of the TAN-ELR algorithm. In addition, the smaller the amount of training data, the best weights given by the merging algorithm is 0% for Pearson Correlation and 100% for TAN-ELR. Meanwhile, the greater the training data, the best weighting on combining algorithms is 100% for Pearson Correlation and 0% for TAN-ELR. Merging Pearson Correlation algorithm and TAN-ELR algorithm with Joint Mixture Voter yields the smallest MAE values depending on the percentage of each algorithm.</p>
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