

Collective-Decision-Making-Using-Conditional-Preference-Networks-Without-Considering-All-Users-Pref

Due to the great increase in e-marketing and high competition to attract more customers and keep them satisfied, collective decision making, the process of making recommendations to a group of people, has become an active research area.

CP-nets (Conditional Preference Networks) are a widely used tool to represent users' preferences, but the problem is that in real world situations, we have a large number of users conveying their preferences over a large number of attributes; therefore, comparing the exponential number of outcomes for all users in a collective decision making process is infeasible.

In this research, we have looked at reducing the number of outcomes to be considered in the process of collective decision making by examining the question of whether we need to consider all users' preferences over all attributes. We propose a novel procedure for collective decision making by clustering users and considering users' preferences only over the most important attributes for that cluster. The use of attribute weighting techniques and clustering methods allows for searching in a much smaller subspace of attributes, and as a consequence requires a smaller number of comparisons between the outcomes, which makes our method more practical for real world problems.

In our approach to make users as satisfied as possible, our methods produce two different kinds of outcomes: a global recommended outcome and cluster specific outcomes, which can be offered in different situations. The results of our experiments demonstrate that the methods can produce high-quality recommendations despite the fact that users' preferences over many attributes are ignored.