CF

Collaborative filtering is the process of filtering for information or patterns using techniques involving collaboration among multiple agents, viewpoints, data sources, etc. Collaborative filtering recommends data that was given high ratings by a number of users, with similar preferences as the user who requested the recommendation.

The first step of collaborative filtering is calculating the similarity of preferences between users. Then, several users with the highest similarity values (nearest neighbors) are picked out. Data that has received high ratings among the nearest neighbors, and that the use who requested the recommendation has not yet evaluated, is recommended.

About of CF

CF techniques collect data and establish profiles, and determine the relationships among the data according to similarity models. The possible categories of the data in the profiles include user preferences, use behaviour patterns, or items properties. CF solves several limitations in content-based filtering techniques, which decides user preference only based on the individual profile.

CF has been expressed in different terminologies in literatures. Social filtering and Automated CF are two frequently referred terminologies. CF-based recommendation systems have been designed and implemented since early 1990’s. CF techniques have been proven to provide satisfying recommendations to users[15]. Many methods, algorithms, and models have been proposed to resolve the similarity decisions in collaborative-filtering-based recommendations systems.

CF method is making automatic predictions about the interests of a use by collecting taste information from many users. Collaborative methods recommend pieces to a use by considering someone else’s rating of those pieces.

Advantages of CF

The biggest advantage of collaborative filtering requires no previous knowledge about the content of the data, and thus it can be applied to any type of data, regardless of content.

Disadvantages of CF

Cf also has some disadvantages. Firstly, the only data that can be recommended using collaborative filtering are ones that have already been evaluated by some other user. It means that it may take some time before a piece of data newly introduced in the data space that can have a chance of being recommended. When the relative size of the data space is extremely large compared to the number of users, a considerable portion of the data space will not be available for recommendation. Next, collaborative filtering only functions properly when there are users with similar preferences. When the number of users is small, the nearest neighbors found by the system might not necessarily have similar preferences, which may result in the system producing inaccurate recommendations. Finally, the computation cost of collaborative filtering can be a problem, especially when the number of users is large.