

Distributed recommenders

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Consider a user-based KNN-based recommender system with set of N users, M items. The profile of a user U_i is a vector of items that the user rated. We consider a binary rating. The similarity metric used is the cosine similarity.

We consider the presence of a server and a set of devices (one per user) with computing capabilities.

- 1) Design a distributed algorithm that leverages the end-user devices to offload part of the computation from the servers to the users devices in order to decrease the load of the server. Remember that the algorithm contains 2 parts: the KNN construction and the recommendation algorithm.
- 2) Can this be applied in the context of an item-based recommender system?