

● Exercise 3: Application to Collaborative Filtering

• **GroupLens recommendation system**

Collaborative filtering is a fundamental technique for personalized recommendation, where personal preferences are handled with personal historical data. The most famous application is shown in Amazon.com, where the next promising items is recommended in each transaction.

First, learn the basic concept of GroupLens recommendation system referring to such documents as:

J. L. Herlocker, J. A. Konstan, A. Borchers and J. Riedl: An algorithmic framework for performing collaborative filtering; Proc. of Conference on Research and Development in Information Retrieval (1999)

You will know that personalized recommendation can be given by the following two phases, which are adopted to user X item evaluation matrix:

1. Neighborhood user search
2. Averaging of scores by neighborhood users

• **Exercise: implementation of GroupLens Algorithm**

Perform collaborative filtering by applying GroupLens algorithm to MovieLens 100K Dataset, which is available at MovieLens website:

<https://grouplens.org/datasets/movielens/>

<https://grouplens.org/datasets/movielens/100k/>

and reproduce the experimental results presented in the above document.

“Deadline”

You should finish this exercise in 4 weeks. (by 31, July 2022)