National University of Singapore
School of Continuing & Lifelong Education (SCALE)

TBA2105 Web Mining
Tutorial/Lab 8

Learning Objectives

- Perform User-Based Collaborative Filtering (UBCF)

1. In this exercise, we will continue to use the `MovieLense` data set in the `recommenderlab` package to create a User-Based Collaborative Filtering (UBCF) recommender system.

   a) Load the `recommenderlab` package and load the `MovieLense` dataset by executing `data("MovieLense")`

   b) In tutorial 3, we have seen that we could use the `as()` function to convert an object to another class. In collaborative filtering methods, we work with the ratings of users for the movies. To see the ratings made by the users, convert `MovieLense` to `data.frame`. To see the data in the utility matrix form, convert `MovieLense` to `matrix`.

   c) Assume that we are trying to do prediction for the first 2 users, we can then divide the data into testing (first 2 rows) (`test`) and training set (from 3rd row onwards) (`train`).

   d) To create a user-based collaborative filtering model, we can use the `Recommender()` function.

   e) The number of users is quite small so this executes quite fast. We can then use the usual `predict()` function and specify how many recommendations we want by specifying the `n` argument in `predict()`.

   f) If you want to see the predicted ratings (i.e. utility matrix with the predicted ratings being filled up), you can supply the argument `type="ratingMatrix"` when doing `predict()`:

   g) It is also possible to supply your own parameters when generating the model when generating the model. For example, add the following argument to `Recommender()`.
   `param=list(normalize = "center", method="Cosine",nn=5)`

   h) Suppose you want to work with your own dataset (e.g. movielense.csv), you would need to first convert the data into realRatingMatrix type before using the `Recommender()` and `predict()` functions.