Assignment:	QM_2019_02
Topic:	Recommender Systems
Hand in to:	k.pak@uva.nl
Deadline:	3-5-2019
Students per group:	3 or 4

Movielens is a web-based recommender system and virtual community that recommends movies for its users to watch. Movielens offers a number of datasets free for research use. Go to **https://grouplens.org/datasets/movielens/** and download the 10M dataset (63 MB). This is a dataset with approximately 10 million ratings for 72,000 users on 10,000 movies. Carefully read the readme.txt for interpretation of the provided data files. Implement the Item-Based Nearest Neighborhood, the User-Based Nearest Neighborhood and the Matrix Factorization techniques to predict unknown ratings. Split the dataset into an estimation sample to train the model and an evaluation sample to evaluate the predicted ratings.

Hand in a short report where you discuss:

- Which similarity measure you selected for the Nearest Neighborhood techniques.
- How you set the parameters of your models.
- How you split the dataset into an estimation and evaluation sample.
- What the prediction accuracy is of the various recommendation techniques based on Sum Squared Error (SSE) for both the estimation and evaluation sample.
- How the calculation times of the various recommendation techniques compare to each other.
- The practical difficulties you encountered while implementing your recommendation techniques on a real-life dataset.

Always provide clear arguments for the choices your make (such as the parameter settings you choose).