Green markings = DoneRed

Assignment 1: User-based and Item-based Collaborative Filtering Recommendations

Due: **November 1, 2020**
Points: 15/100
Submit: A file upload at Moodle

The goal of the first assignment is to implement a user-based and an item-based collaborative filtering approach.

The assignment may be completed in pairs. Each pair submits one only assignment, and both students are expected to understand, be able to explain, and be able to modify the implementation.

Download the **MovieLens 100K** rating dataset from https://grouplens.org/datasets/movielens/ (the *small* dataset *recommended for education and development*). Read the dataset, display the first few rows to understand it, and display the count of ratings (rows) in the dataset to be sure that you download it correctly. **Score: 10%**

Implement the user-based collaborative filtering approach, using the Pearson correlation function for computing similarities between users (**Score: 20%**), and the prediction function presented in class for predicting movies scores (**Score: 20%**).

Select a user from the dataset, and for this user, show the 10 most similar users and the 20 most relevant movies that the recommender suggests. **Score: 5%**

Implement the item-based collaborative filtering approach, using the cosine similarity for computing similarities between items (**Score: 20%**), and the prediction function presented in class for predicting movies scores (**Score: 20%**).

Select a user from the dataset, and for this user, show the 20 most relevant movies that the recommender suggests. **Score: 5%**

Any programming language for your assignment is acceptable.

Please explain any assumptions you made.

Submit your codes at Moodle before **NOVEMBER 1, 2020**. Some instructions on how to run your codes are necessary.

At the end of the course, we will have a session for examining the assignment.