Recommender Systems

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Assignment 4

Implementing a content-based recommender

Implement a popularity-aware content-based recommendation technique. Write a program that:

A) Accepts the user ID as input (on the console)
B) Displays the user profile in terms of the rated items
C) Prints the top-10 recommendations on the console. To implement the algorithm:
   1) Create a user profile based on the genres of the movies. Count how often each movie genre appeared in the set of the movies that the user has liked (i.e., when the rating is greater than 3).
   2) Determine the similarity of each recommendable movie to this user profile. Implement a simple strategy that simply determines the overlap in genres, ignoring how many movies of a certain genre the user has liked. Inspect the outcomes of this recommendation strategy for a few users.
   3) Extend the algorithm as follows. When recommending, remove all movies that have no overlap with the given user profile. Rank the remaining items based on their popularity[1]. Again, test your method with a few users.
   4) Implement a method that also considers the "genre-count" in the user profile in some form. Test your method interactively with a few users to check the plausibility of the recommendations.

Use the MovieLens1M dataset for testing your program. Structure your program code in functions and/or classes. Implement appropriate error handling procedures.

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[1] You can determine the popularity of any item by counting the numbers of ratings for it.