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Recommendation system using collaborative filtering

Introduction:

Item-based collaborative filtering is the recommendation system to use the similarity between items using the ratings by users.

Basic Concept

The fundamental assumption for this method is that **a user gives similar ratings to similar movies**

How IBCF works?

Firstly, similarities between items are computed. Secondly, based on the computed similarities, items similar to already consumed/rated are looked at and recommended accordingly.

We have used the MovieLens dataset consisting of 100K ratings provided by 941 users across 1682 items for implementing IBCF.

Functions documentation:

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def standardize(column):
this function standardizes the ratings and bring the mean to zero. Subtracting user rating of a given item with that user's average rating
normalizes ratings to the same scale and helps overcome optimism issues.


def get_similar_given_movie(movie_name,number_of_movies):
takes movie name and the number of similar movies we want
returns: list of similar movies as strings
it gets the most movies like the given movie from the correlation matrix


def get_similar_given_user(id_user):
takes the user id
returns: 3 recommended movies to the user

To recommend 3 movies to a user, we have 2 options, either we choose one movie the user watched and liked, then recommend 3 movies like that movie, or we choose 3 movies the user liked, and get one similar movie to each one of them, but we should make sure that the user didn't watch the movies that we will recommend

I chose the 2nd option, this is how it works,
```

1- get 3 movies the user liked,
2- get one similar movie to each one of them
3- make sure that the user hasn’t watched it yet
4- recommend it to the user.