Assignment Instructions: Dimensionality Reduction

Overview

This assignment will explore matrix factorization collaborative filtering.

To get started, download the spreadsheet:

Assignment 6.xlsx

Assignment 6.xls

Assignment 6.ods

Spreadsheet Layout

This spreadsheet has 2 sheets: an Items sheet and Users sheet.

The Items sheet contains the feature values for 100 items and 15 features, along with the weight (singular value) for each feature.

The Users sheet contains the feature values for 20 users and those 15 features.

Deliverables

The output you are supposed to turn in consists of 3 parts: top movies for 2 features, and recommendations for a user.

Top Movies

For the first 2 features, provide the top 5 movies for that feature. Only provide the movie IDs.

Compute the top 5 movies for user 4469. Each movie should be scored with the function

$$s_{ui} \sum_{f} a_{uf} \sigma_f b_{if}$$

where a_{uf} is the user weight for feature f, and b_{if} is the item weight for feature f.

Only provide the movie IDs of the 5 recommendations.

✓ Complete