

Honors Assignment

Programming Non-Personalized Recommenders

Assignment Objectives

Implement non-personalized recommenders

- Mean rating
 - Both raw and damped
- Association rules
 - Basic
 - Lift

Getting Started

- Download the assignment template
- Extract it
- Import into your IDE as a Gradle project
 - Gradle will do the rest

Mean Recommenders

Basic Mean:

$$s(i) = \frac{\sum_u \bar{r}_{ui}}{|R_i|}$$

Damped Mean:

$$s(i) = \frac{\sum_u \bar{r}_{ui} + \gamma \mu}{|R_i| + \gamma}$$

global mean rating

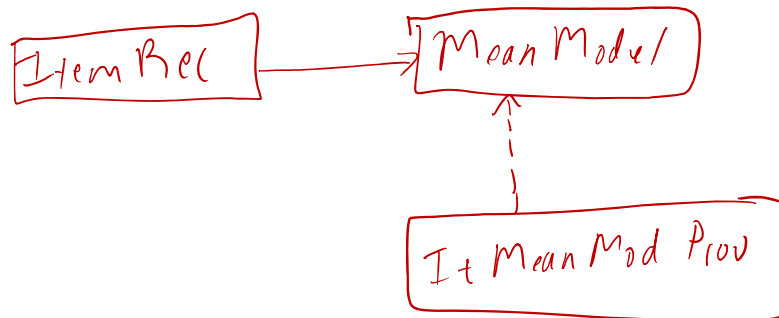
γ will be a configurable parameter

= 5

Recommender Structure

LensKit recommenders have 3 components:

- Recommender or scorer
 - MeanItemBasedItemRecommender
- Model
 - MeanModel
- Model provider/builder
 - ItemMeanModelProvider
 - DampedItemMeanModelProvider



Association Rules

These will use a *reference item*

Basic rule

$$s(i|j) = P(i|j) = \frac{P(i \wedge j)}{P(j)} = \frac{|U_i \cap U_j|/|U|}{|U_j|/|U|}$$

Handwritten notes for Basic rule:
 - Above $|U_i \cap U_j|$: # users rating both
 - Above $|U_j|$: # of users
 - Below $s(i|j)$: Target
 - Below $P(j)$: Reference

Lift rule

$$s(i|j) = \frac{P(i|j)}{P(i)} = \frac{P(i \wedge j)}{P(i)P(j)}$$

Handwritten note for Lift rule:
 - Below $P(i)$: # of users rating i

Running your code

- Use Gradle tasks
 - See instructions for details
- In IntelliJ, you can 'debug' the Gradle task to run your code in the debugger
- Log files show up under build.

Submitting Your Work

- Submit a compiled jar file
- The `prepareDistribution` Gradle task will make one and name it properly
- Upload this file to Coursera

Coursera will automatically grade your code
See grading formula in assignment description

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