DATA.ML.360, Assignment 4

Explaining Group Recommandations: Why-not Questions

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Why-not Questions

- Granularity
  - Property related to the level of detail of the question
  - Atomic: Single individual unit, e.g. movie
    - *"Why not movie A?"*
  - Group: Level of detail of the dataset
    - E.g. divide individual movies into groups
    - *"Why not more genre X?"*
- Absenteeism
  - Total: related to if it is missing
    - *"Why not movie A?"*
  - Positional: related to rank
    - "Why not movie A first?"

Explanation categories

- Error checking is used to check if the input is valid
  - For example, if the movie does not exist in the database, we can't answer why the movie is not in the recommendations
- User movie and genre analyses is used to check if the individual users have been given prediction scores for the item high enough to get the item in the recommendations.
- Group genre analysis is used to check the group preference for the genre.
- General analysis is used to check general reasons why the item is not in the recommendations.
  - For example, the item could be outside the top-10 recommendations due to a tie

Atomic granularity: *"Why not Matrix?"*

- This explanation engine is for movies that are not in the top-10 group recommendations.
- Specialized in movie specific analysis
- Contains
  - error checking
  - user movie analysis
  - general movie analysis

Group granularity: *"Why not more romance movies?"*

- Specialized in genre analysis.
- Genres don't directly effect the group recommendation logic, however we detect patterns in the user preferences and predicted ratings.
- Often uses idea of "common"
  - E.g. From top-10 recommendations, which genre do most movies belong to?
- Contains
  - error checking
  - user movie analysis
  - group genre analysis
  - general movie analysis

Position absenteeism:
"Why not rank Fargo first?"

- We use this explanation engine for movies that are in the top-10 group recommendations.

- We think that a more in-depth explanation is needed for movies that are already in the recommendations because the user might want to
know the small details and possible explanation when asking this specific question.

- Specialized in both movie and genre analyses

- Contains
  - error checking
  - user movie analysis
  - group genre analysis
  - general movie analysis