



Recommendation System

TEAM - 8

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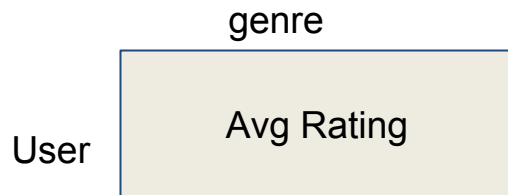
Recommendation Strategies

1. User - User: Collaborative Filtering
2. User - Item: Content Based
3. Hybrid

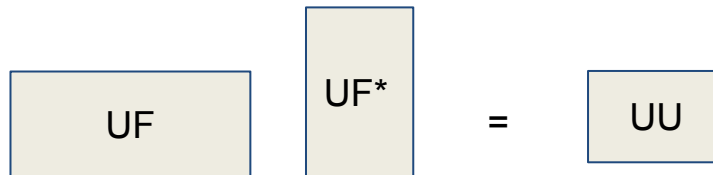


1. Collaborative Filtering

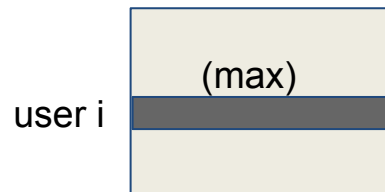
1. Prepare User-Feature matrix UF



2. Get the User-User matrix: $UU = UF \cdot UF^*$



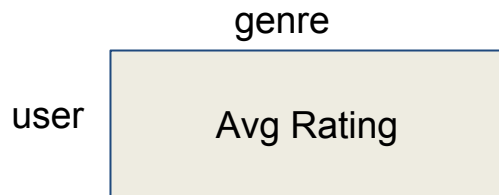
3. Get the closest user from UU



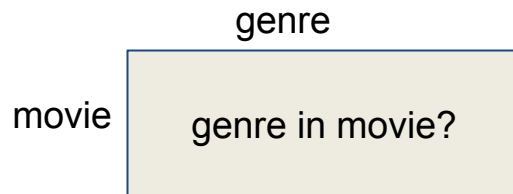
4. Recommended Movies = (Unseen) \cap (Seen of Closest User)

Content Based

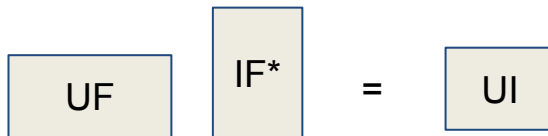
1. Prepare User-Feature matrix UF



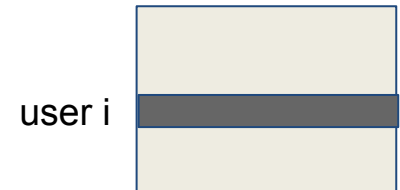
2. Prepare Item-Feature matrix IF



3. Prepare the User-Item matrix



4. Recommended movies = sorted(UI[user i]),



Hybrid

M1 = Recommended movies from user-user

M2 = Recommended movies from user-item (top 30)

Recommended movies = $M1 \cap M2$



Evaluation(Enlisted User)

Evaluation Strategy:

Strategy 1:

- Find a movie with the highest rating by the user.
- Remove that movie rating.
- Check if this removed movie comes out as in recommendation list.

Result:

Too poor performance, like close to zero.



Evaluation(Enlisted User)

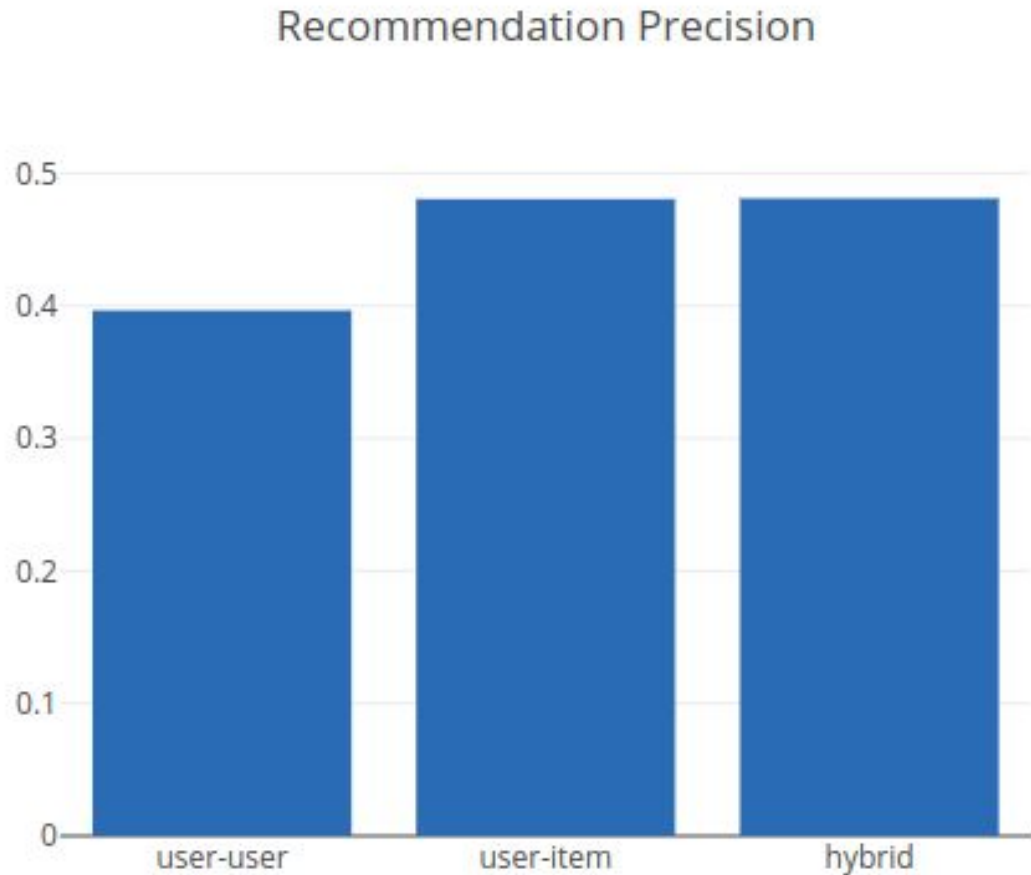
Evaluation Strategy:

Strategy 2:

- Run algorithm to get a recommended movie.
- If (average genre rating by the user) > (average rating by the user and 3.5):
 - A true positive case
- Else
 - A False positive case
- Run for all users

Evaluation(Enlisted User)

- There is only precision
- No recall as there is no false negative!



Evaluation(New User)

Evaluation Strategy:

- Ask user to rate N consecutive movies to rate
- Each rating affects the next recommendation
- If a recommended movie's user rating > 3.5 , then it **True Positive**
- Otherwise it is **False Positive**
- Calculate **Precision**



Demonstration



Questions?



Thanks!!!

