Recommenders Breakout

Galvanize

Individual Exercise

Give 3 examples of each of the following types of data:

- User data
- Item data
- User-item interactions

Pair Discussion

1. Bob is 6'4” and weighs 190 pounds.
    - What are some features that you might engineer for this user?

2. This Canon camera costs $850 and is considered “prosumer” level.
    - What are some features that you might engineer for this item?

Individual Exercise

For each of these ratings, are they *implicit* or *explicit*?

a. Liking a song on Pandora
b. Listening to a song on Pandora
c. Sharing a song on Pandora with a friend
d. Giving a rating on Netflix
e. Watching a movie on Netflix
f. Viewing an item on Amazon
g. Purchasing an item on Amazon
h. Adding an item on Amazon to your wish list

Pair Exercise

In your own words, give a simple 1-2 sentence explanation of how a **song recommender** would work if it was framed in terms of:

1. Classification/Regression
2. Collaborative Filtering
3. Similarity

Pair Exercise

Consider the three framings for recommenders:

1. Classification/Regression
2. Collaborative Filtering
3. Similarity

1. What utility does each framing give a user who just joined the site? What about a seasoned user? When does it begin to offer value to the user?
2. How much value might the recommender eventually offer?
3. What kind of data does each framing require?

Individual Exercise

How would you explain the Collaborative Filtering algorithm to a friend who's intelligent but not a coder/data scientist/analyst?

Pair Exercise

1. Each partner reads their answer.
2. Collaborate to create the best of your two answers.

Pair Discussion

How would you compare the matrix factorization recommender to the matrix factorization techniques we saw earlier (SVD, PCA, NMF)?

Pair Discussion

1. Why do we have to be particularly careful about overfitting a matrix factorization recommender? Is there a property of the ratings matrix that could make it more prone to being overfit?
2. In what ways can we regularize our factorization?