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**Lecture 17 Matrix Factorization, Collaborative Filtering for Recommendation**

**Lecture 18 Topic Modeling, Non-negative Matrix Factorization**

**Week 9 Quiz**
Quiz due Apr 11, 2017 07:30 MYT

**Week 9 Project: Clustering**
Project due Apr 11, 2017 07:30 MYT

**Week 9 Discussion Questions**



# Week 9 Quiz

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## Checkboxes

1/1 point (graded)

Which of the following are problems that are naturally addressed by collaborative filtering?

- [x] recommending movies
- [ ] recommending a political policy
- [x] recommending music
- [x] recommending restaurants

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)

A content filter . . .

- (•) uses known information about the products and users to make recommendations. ✔
- ( ) uses previous user inputs/behaviors to make future recommendations.

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

Week 10
Week 11

## Multiple Choice

1/1 point (graded)
A collaborative filter . . .

- uses known information about the products and users to make recommendations.
- uses previous user inputs/behaviors to make future recommendations. ✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)
True or false: Content filtering and collaborative filtering are two distinct approaches that are not able to be combined in a single model.

- TRUE
- FALSE ✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Checkboxes

1/1 point (graded)

Check all true statements about collaborative filtering using matrix factorization.

- [x] we anticipate it will work because we make a low rank assumption
- [ ] all values in the matrix are needed before learning can begin
- [x] probabilistic matrix factorization can be thought of as a set of connected ridge regression problems
- [x] it can be thought of as a way for embedding users and objects into a latent space

✔

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)

True or false: Latent Dirichlet allocation can be thought of a a nonnegative matrix factorization problem.

- (•) TRUE ✔
- ( ) FALSE

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✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)

In LDA, the "topics" correspond to _____ .

- (•) distributions on words that are semantically meaningful ✔
- ( ) distributions on how each document uses the themes available to it
- ( ) the collection of word assignments to their respective themes

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)

This week we discussed probabilistic matrix factorization (PMF) and nonnegative matrix factorization (NMF). Which can be considered a "parts-based learning" model?

- PMF
- NMF ✔
- both
- neither

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)

We made some loose connections between LDA and NMF. Which of the following is true?

- LDA and NMF are both Bayesian models
- LDA is a maximum likelihood model, while NMF can be thought of as a is a fully Bayesian model
- LDA is a fully Bayesian model, while NMF can be thought of as a maximum likelihood model ✔
- neither LDA nor NMF have probabilistic interpretations

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)

## Multiple Choice

1/1 point (graded)

We discussed two version of NMF. Which one(s), if any, correspond to a Poisson model?

- $\|X - WH\|^2$
- $D(X\|WH)$ ✔
- both
- neither

Submit You have used 1 of 1 attempt

✔ Correct (1/1 point)