

Recommender Systems

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1.

Suppose you run a bookstore, and have ratings (1 to 5 stars)

of books. Your collaborative filtering algorithm

uses a parameter vector $\theta^{(j)}$ for user j , and a feature

vector $x^{(i)}$ for each book. You would like to compute the

"training error", meaning the average squared error of your

system's predictions on all the ratings that you have gotten

from your users. Which of these are correct ways of doing so (check all that apply)?

For this problem, let m be the total number of ratings you

have gotten from your users. (Another way of saying this is

that $m = \sum_{i=1}^{n_m} \sum_{j=1}^{n_u} r(i, j)$). [Hint: Two of the four options below are correct.]



1 / 1
points

2.

In which of the following situations will a collaborative filtering system be the most appropriate learning algorithm (compared to linear or logistic regression)?



1 / 1
points

3.

You run a movie empire, and want to build a movie recommendation system based on collaborative filtering. There were three popular review websites (which we'll call A, B and C) which users go to rate movies, and you have just acquired all three companies that run these websites. You'd like to merge the three companies' datasets together to build a single/unified system. On website A, users rank a movie as having 1 through 5 stars. On website B, users rank on a scale of 1 - 10, and decimal values (e.g., 7.5) are allowed. On website C, the ratings are from 1 to 100. You also have enough information to identify users/movies on one website with users/movies on a different website. Which of the following statements is true?

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4.

Which of the following are true of collaborative learning systems? Check all that apply.



1 / 1

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5.

Suppose you have two matrices A and B , where A is 5×3 and B is 3×5 . Their product is $C = AB$, a 5×5 matrix. Furthermore, you have a 5×5 matrix R where every entry is 0 or 1. You want to find the sum of all elements $C(i, j)$ for which the corresponding $R(i, j)$ is 1, and ignore all elements $C(i, j)$ where $R(i, j) = 0$. One way to do so is the following code:

```
C = A * B;
total = 0;
for i = 1:5
    for j = 1:5
        if (R(i,j) == 1)
            total = total + C(i,j);
        end
    end
end
```

Which of the following pieces of Octave code will also correctly compute this total? Check all that apply. Assume all options are in code.

