

1. Which of the following methods can be used to convert a dense matrix saved as a long/vertical format to a sparse matrix? 1 / 1 point
- ☒ pivot()
 - ☐ fillna()
 - ☐ sparseToDense()
 - ☐ resetindex()
- ☒ Correct
Correct. The pivot() method can be used to convert a dense matrix to a sparse matrix.
2. Which of the following methods from the KNNBasic class can be used to train a KNN-based collaborative filtering model with a training set? 1 / 1 point
- ☐ train_test_split()
 - ☐ train()
 - ☐ tensorflow()
 - ☒ fit()
- ☒ Correct
Correct. The fit() method can be used to train a training set.
3. Which of the following is a Python scikit library used for recommender systems? 1 / 1 point
- ☐ Recommender
 - ☐ Pandas
 - ☒ Surprise
 - ☐ Numpy
- ☒ Correct
Correct. Surprise is a scikit library that can be used to create recommender systems.
4. Say you are given a sparse user-item interaction matrix, A, with dimensions 10000 x 500 and you defined the latent feature vector dimension to be 37. If non-negative matrix factorization is applied to A to decompose it into a user matrix, U, and an item matrix, I, what are the dimensions of U and I? 1 / 1 point
- ☐ U (37 x 500) and I (37 x 10000)
 - ☐ U (37 x 500) and I (10000 x 37)
 - ☐ U (37 x 10000) and I (500 x 37)
 - ☒ U (10000 x 37) and I (37 x 500)
- ☒ Correct
Correct. Non-negative matrix factorization decomposes a user-item sparse matrix with dimensions (i x j) and k features into two smaller dense matrices with dimensions (i x k) and (k x j).

5. If the pre-defined RecommenderNet is provided a user one-hot vector and an item one-hot vector as inputs, what is the expected output? 1 / 1 point

- ☐ An embedding vector
- ☐ A rating vector
- ☒ A rating estimation
- ☐ An embedding layer

☒ Correct
Correct. If a neural network is provided with a user one-hot vector and an item one-hot vector, the output should be a rating probability.

6. In the Neural Networks lab, what is meant by embedding? 1 / 1 point

- ☒ Embedding the one-hot encoding vector into a latent feature space
- ☐ Transforming an embedding layer into a one-hot coding vector
- ☐ Finding the dot product of the embedding vector and the one-hot coding vector
- ☐ Transforming a one-hot coding vector into an embedding vector

☒ Correct
Correct. In the Neural Networks lab embedding means embedding the one-hot encoding vector into a latent feature space.

7. In the Regression lab, what is the data that is input into the regression model? 1 / 1 point

- ☒ An interaction feature vector
- ☐ A one-hot coding vector
- ☐ A rating vector
- ☐ An embedding vector

☒ Correct
Correct. The data input into the regression model is an interaction feature vector representing the interaction between user i and item j .

8. Which of the following method(s) can be used to aggregate two feature vectors? 1 / 1 point

- ☐ Element-wise addition
- ☐ Element-wise multiplication
- ☐ Element-wise max/min
- ☒ All of the above

☒ Correct
Correct. All of these methods can be used to aggregate two feature vectors.

9. In the Classification lab, which values are used as input to LabelEncoder()? 1 / 1 point

- ☐ Embedding feature vector
- ☐ One-hot coding vector
- ☒ Rating mode
- ☐ Interaction feature vector

☒ Correct
Correct. Rating modes are input into the LabelEncoder to encode the rating label to be categorical.

10. What does the `fit_transform()` method in the LabelEncoder class return?

1 / 1 point

- ☒ Encoded labels
- ☐ An embedding feature vector
- ☐ Rating modes
- ☐ An item vector

☒ Correct
Correct. The `fit_transform()` method returns encoded labels.