

1. (True/False) In some applications, NMF can make for more human interpretable latent features.

1 / 1 point

- ☒ True
- ☐ False

✔ **Correct**  
Correct! You can find more information in the video Non Negative Matrix Factorization.

2. Which of the following set of features is the least adapted to NMF?

1 / 1 point

- ☐ Word Count of the different words present in a text.
- ☐ Pixel color values of a an Image.
- ☐ Spectral decomposition of an audio file.
- ☒ Monthly returns of a set of stock portfolios.

✔ **Correct**  
Correct! You can find more information in the video Non Negative Matrix Factorization.

3. (True/False) The NMF can produce different outputs depending on its initialization.

1 / 1 point

- ☒ True
- ☐ False

✔ **Correct**  
Correct! Please review the video Non Negative Matrix Factorization.

4. Which option is the sparse representation of the matrix below?

1 / 1 point

[(1, 1, 2), (1, 2, 3), (3, 4, 1), (2, 4, 4), (4, 3, 1)]

- ☒  $\begin{bmatrix} 2 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 1 \\ 0 & 4 & 1 \end{bmatrix}$
- ☐  $\begin{bmatrix} 0 & 0 & 1 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \\ 0 & 4 & 1 \end{bmatrix}$
- ☐  $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 2 \end{bmatrix}$
- ☐  $\begin{bmatrix} 0 & 0 & 2 \\ 0 & 3 & 4 \\ 0 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

✔ **Correct**  
Correct! You can find more information in the video Non Negative Matrix Factorization Notebook - Part 1.

5. In *Practice lab: Non-Negative Matrix Factorization*, why did we use "pairwise\_distances" from scikit-learn?

1 / 1 point

- ☐ To calculate the maximum pairwise distance between points in the dataset.
- ☒ To calculate the pairwise distance between NMF encoded version of the original dataset and the encoded query dataset.
- ☐ To calculate the pairwise distance between data points for eliminating outliers.
- ☐ To calculate the pairwise distance between points of the NMF encoded version of the original dataset.

✔ **Correct**  
Correct! This helps us determine which existing data point is most similar (and hence the closest) to a new query point.