

EE-559 Deep learning – Practice 2, Students' questions

A question is denoted by **Q**; the corresponding answer is denoted by **A**. The questions-related exercises are marked by their numbers in Practice_2.pdf and Practice_2.ipynb documents.

Q: Why is taking so long to run the cell with `model = SentenceTransformer(...)` in exercises 2.1?

A: This code downloads the pretrained model from the online repository. Because the models can be quite large, the download process will take some time to complete. Be sure to use Gnote to speed up the process.

Q: Why does `print(jobs_SB.head())` only display 5 lines in exercise 2.1?

A: The `head()` method in pandas is designed to display the first few rows of a DataFrame. By default, `head()` shows the first 5 rows. This behavior is intentional to provide a quick preview of the data without overwhelming the user with too much information. If you want to display a different number of rows, you can pass an argument to `head()`. For example, `print(jobs_SB.head(10))` will display the first 10 rows.

Q: What are the licenses in exercise 2.6?

A: An image license refers to the legal authorization or permission granted to use a specific image or visual content in a specific manner. An image license, usually provided by the copyright holder or owner of the image, specifies the terms and conditions for using the image. On Flickr, users can choose among types of licenses for their photos. The default license is *All rights reserved* meaning that all image rights are reserved to the owner and owner permission is required to use the image. However, "many Flickr users choose to license their work under a Creative Commons". "Creative Commons provides a simple, standardized way to give permission to share and use creative work." Information about Flickr licenses can be found [here](#).

Q: What does `model.encode()` do, what is an embedding in exercise 2.1?

A: "Embeddings are numerical representations of real-world objects that AI systems use to understand complex knowledge domains like humans do. Embeddings convert real-world objects into complex mathematical representations that capture inherent properties and relationships between real-world data". In simple words, embedding is a 'smart compression' of your input, in which the model preserves important information and leaves out the noise. At each hidden layer, the model compresses the input more and more. Outputs of a specific hidden layer for different inputs are located in an embedding space. By 'looking' at an embedding space and the placement of concepts inside this space, you can see which patterns did the model learn from the data. `model.encode(x)` encodes `x` to an embedding space of the model.