Hands-on exercises workshop 1 ML2

If you have an Anaconda environment that contains Tensorflow version >2, you can use that. Otherwise, open an Anaconda prompt and navigate to the extracted zip. Create the (quite dated!) environment by means of the following command:

(base)<anaconda prompt> conda env create -f environment.yml

Activate the newly created environment ml2\_ws1\_ws2 and run jupyter notebook.

Also install:  
(base)<anaconda prompt> conda install pydot graphviz -c conda-forge

**Optional**: the notebooks use Keras/Tensorflow. Do the exercises on your own datasets using Pytorch, as Pytorch seems to be more popular than Keras/Tensorflow.

# Exercise 1.1: First Deep Learning Model

1. Run and study ‘First Deep Learning Model.ipynb’.
2. Explain the program by adding some comments to the code blocks.

# Exercise 1.2: Data exploration

Data exploration is about understanding the data. How much data do we have? Are there any missing values? Does the data contain errors? What are the data types (text, numbers, ...)? Are the data samples equally distributed among the classes? Et cetera.

1. Run and study the notebook ‘Data exploration.ipynb’.
2. Find an own dataset on the internet (e.g. kaggle.com).
3. Perform a data exploration on your own dataset.

# Exercise 1.3: Linear Regression with Keras

During ML1, you’ve performed linear regression using Keras/Tensorflow. In this exercise we do it once more.

1. Run and study the notebook ‘Linear Regression with Keras.ipynb’.
2. Find an own dataset on the internet suitable to perform linear regression.
3. Perform linear regression on your own dataset.
4. Explain the program by adding some comments to the code blocks.