**Exercise 8.1** *Planning of research project* (100 Points)

1. **Model and input features**:
   1. What model architecture(s) will you use and explore? Provide a detailed explanation of your choice(s).

**Answer:**

* 1. What libraries will you use to implement/train the model(s)? Install and load the necessary libraries.

**Answer:**

* 1. What are the input features for your model(s)? Explain your choice of input features? How will you compute the input features?

**Answer:**

* 1. What libraries will you use to compute the input features? Install and load the necessary libraries.

**Answer:**

1. **Model training:**
   1. How do you train the model(s) described? Your answer should address the following questions: What optimizer and loss function will you choose? What computational resources will you need? What data will you use to train the model(s) Can you train the model on your PC or do you need to use the HPC? How long do you expect the training process to take?

**Answer:**

* 1. How do you find appropriate hyperparameters for your model(s)?

**Answer:**

* 1. Install and load all libraries required for model training.

**Answer:**

1. **Datasets:**
   1. What datasets will you need during the project? Do you have access to all the datasets you need? Load all datasets and display the first five records of each dataset.

**Answer:**

* 1. Provide a detailed description of each of the datasets listed above and the type of data you want to extract from them.

**Answer:**

* 1. Is the data set already divided into training, validation, and test sets? If not, how will you split the data?

**Answer:**

1. **Evaluation:** How will you evaluate the success of the project? What will you compare? What metrics will you use? What data will you use for evaluation?

**Answer:**

1. **Unclarities / Open questions:** Are all steps of the research project clear to you? Are there any steps that are unclear to you? Please describe what is unclear.

**Answer:**