Assignment 1 - Common Mistakes

Question 1

Section A

- Answering the question with respect to train & validation sets instead of the train & test sets. -1

Section B

- Lacking: When checking the performance of a model, we are not supposed to use any knowledge of the test-set, since we assume we do not have any access to it, nor its statistics. An extreme example can be a test-set consist of only one sample, and obviously its statistics cannot be extracted. -1

Section C

- Lacking: The validation set is used to evaluate the performance of the model for different combinations of hyperparameter values. -1
- Lacking: During training, the validation set allows both the assessment of the model generalization power and avoiding over-fitting. -1
- Lacking: The test set is used for different models architectures' comparisons, as one cannot make comparisons based on the validation set that was part of fitting the model. The test set allows one to compare different models in an unbiased way, by basing the comparisons on data that was not used in any part of the model building process. -2

Question 2

Section C

- Substantial gaps between the analytical result and that of the algorithm. -2

Section D

- W is not supposed to be composed of equal entries as it resembles a vector of weights (that in general are not all identical) and otherwise, how does this section is different from the previous one? -2
- W is a scalar instead of a vector. -2
- Substantial gaps between the analytical result and that of the algorithm. -2
- The error values are not printed. -3

Section F

- When tuning the hyperparameters, both training and validation sets are needed to be monitored (by printing or plotting) otherwise a potential overfitting cannot be detected. -1
- Improper plots visualization: no axes labels, no mu/batch-size legends/titles. -1
- Model accuracy curve does not increase or either the model loss curve does not decrease. -1

Section G

- No plots demonstrating the requested behavior are presented. -1

Section I

- Too low accuracy compared to the one obtained via sklearn library. -2