COMP5329 – Deep Learning

Assignment 1

Team:

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########################### BRIEF ########################################

**Due: Thursday, 12 April (Week 7)**

Based on the codes given in Tutorial: Multilayer Neural Network, you are required to accomplish a multi-class classification task on the provided dataset.

In this assignment, you are expected to implement the modules specified in the marking table.

You must guarantee that the submitted codes are self-complete, and the newly implemented modules can be successfully run in common python environment.

You are **NOT** allowed to use Deep Learning frameworks (e.g. PyTorch, Tensorflow, Caffe, and KERAS), or any kinds of auto-grad tools (e.g. autograd). Scientific computing packages, such as NumPy and SciPy, are acceptable.

* One student needs to submit the report which must be named as student ID numbers of all group members separated by underscores. E.g. “xxxx\_xxxx.**pdf**”
* The report must include **a link of your code and data** (e.g., a shared Google cloud folder, so we can easily run it on Colab). Clearly provide instructions on how to run your code in the appendix of the report or include a **readme.txt** in your shared folder.
* *Don’t update the code/data any more after the submission. If the latest modified time of the shared folder is signiftanly late after the submisison deadline, the whole submission will be taken as a late submission.*
* The report must clearly show (i) details of your modules, (ii) the predicted results from your classifier on test examples, (iii) run-time, and (iv) hardware and software specifications of the computer that you used for performance evaluations.
* If you use ChatGPT or other AI tools for the assignments, please clarify how you have used them in the report.

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* Introduction [5]
* What is the aim of the study?
* Why is the study important?
* Methods [15]
* Pre-processing (if any)
* The principle of different modules
* What is the design of the best model?
* Experiments and results (with figures or tables) [20]
* Performance in terms of different evaluation metrics.
* Extensive analysis, including hyperparameter analysis, ablation studies and comparison methods.
* Justification of best model.
* Discussion and conclusion [5]
* Meaningful conclusion and reflection
* Other [5]
* At the discretion of the marker: excelling expectation, fast code, LATEX, etc.