**Deep Learning Assignment 1 Marking Scheme**

**Total: 20 marks.**

Note: Please don’t over-write your code for an earlier part when you move on to the next part; copy and modify the code so that we can see all parts and grade them all.

Part 1 – Implement Logistic Regression: 4 marks.

* 1: Brief description of algorithm, including references to sources used.
* 3: Correct implementation of logistic regression (single-node neural net), including correct implementation of gradient descent, able to handle different numbers of training cases and different numbers of attributes.

Part 2 – Test on Easy Tasks: 3 marks

* 1: Code to read in a dataset with variable number of training cases and attributes, and divide it into a training set, validation set and testing set.
* 1: Blobs dataset: train the logistic regressor, use the validation set if needed, and test on the test set. Present results and observations on them.
* 1: Moons dataset: train the logistic regressor, use the validation set if needed, and test on the test set. Present results and observations on them.

Part 3 – Implement Shallow NN: 5 marks

* 1: Brief description of algorithm, including references to sources used.
* 3: Correct implementation of a feed-forward neural network with 1 hidden layer and a standard kernel such as sigmoid, including backprop, extending your previous implementation of logistic regression.
* 1: Train and test on the Blobs and Moons datasets, present results, and make observations on results.

Part 4 – Challenging Task: 3 marks

* 1: Code to read in the big dataset, and sample subsets for training, validation and testing.
* 1: Train the NN, tune on the validation set if required, and test on the test set.
* 1: Present results and make observations on your testing.

Part 5 – Deep Learning Enhancements: 5 marks

* 1: Brief description of your enhancement to the algorithm, including references used.
* 3: Correct implementation of your enhancement.
* 1: Preform new training and testing on the big dataset, present results, and make observations on your testing.

**If two people are working on the assignment, Part 5 must be done twice, with each of you fully doing one (though you can still discuss it with the other person). Therefore, there must be two (rather than one) enhancements described and implemented, two sets of testing results, and two sets of observations. I will grade this separately per person.**

Policy on two-person submissions:

* You are encouraged to work in pairs for Parts 1-4, but you cannot collaborate with any other people beyond that.
* Part 5 must be done twice for a 2-person assignment.
* Your documentation and code must be clear about what contributions each person made; it is not sufficient to say something like “we both worked on everything together”. Put a comment in each code block saying who wrote it.
* Across all parts of the assignment, I may award different marks to each person doing a 2-person assignment if I feel that their contributions are not equal.
* For a 2-person group, only 1 person must make the submission, with both group members’ names and IDs on it.

Policy on Plagiarism:

*Plagiarism is the act of copying, including paraphrasing or directly quoting from the work of another without adequate acknowledgement, in order to obtain benefit, credit or gain. Plagiarism can apply to many materials, such as words, ideas, images, information, data, approaches or methods. Sources of plagiarism can include books, journals, reports, websites, essay mills, another student (current or former), or another person.*

* You are required to act with academic integrity in carrying out your assignments
* If you have notified me that you are doing your assignment in a 2-person  group, you may collaborate with that person, but nobody else
* If you plagiarise **any part** of your assignment, you will get 0 for your full assignment, with no option to resubmit
* It is **your** responsibility to ensure that you understand the university’s rules on what constitutes plagiarism
* There are many sources of information available online on what constitutes plagiarism, so that you can avoid it
* If I suspect any plagiarism, I reserve the right to refer this case to the formal university plagiarism procedures
* Plagiarism is a form of academic misconduct, and is particularly serious at postgraduate level. I will not hesitate to recommend maximum penalties where any part of an assignment is plagiarised.