Final Project, Part 2 Instructions

For your paper, which you will submit for Part 2 of your final project, include all of the items listed below.

Charts and graphs should be used as appropriate. Please make your answers to the various parts of the assignment easy to find, preferably in the order specified below.

Refer to the assignment page in the course for details on any additional requirements.

1. Your objective should be stated in written form. What are you trying to accomplish? Predicting a number? Classifying? Your objective must refer to the context of the problem, specifically. (You may reuse the objective from Part 1 of your project or revise as appropriate.)

2. The source URL(s) for the data and description should be included.

3. Your final ANN model, in code, should be in an attachment.

4. Your final model and training algorithm should be in words.

5. Describe your experimental plan for arriving at the final model.

6. Describe how long it took to run all the models in your experimental plan.

7. Explain the input variables.

8. Describe the data preprocessing steps you took and why you took those particular steps.

9. Explain your metrics and justify your choices.

10. Explain your method to validate the model.

11. Summarize your results in terms of appropriate metrics for the objective and problem.

12. Include a discussion and/or justification for how you used or didn't use all of the following:
    a. selection of the optimum number of units
    b. type of network (feedforward, recurrent, backpropagation, etc.)
    c. type of training (supervised, unsupervised)
    d. proportion of training and testing data sets (70:30, 80:20, and etc.)
    e. number of input and output units (usually application dependent)
    f. number and size of hidden layers (2N+1, experimental)
    g. number of repetitions during training (epoch)
    h. choice of activation function (sigmoid, linear, Tanh, ReLU, and etc.)
    i. size of data set (number of records)
    j. learning rate
    k. momentum

13. Conclude with a discussion of results and further work to be done.

14. For each line of the code that you used for the assignment, other than those containing ‘from’ and/or ‘import,’ please insert a comment above stating what each line does.
    a. Please place a comment block (code flow) below the ‘from/import’ block and above the code that describes in sentence form the overall flow of the code and the purpose of the code. (What are we trying to accomplish?) You may use pseudocode, if desired.
    b. Please place a comment block below the ‘code flow’ block and above the code that lists each variable used and explains what each variable is used for.
    c. A single line comment may start with a #.
    d. A comment block should start with ‘’’ and end with ‘’’.
    e. If you are commenting on two or more lines of code that are essentially identical, i.e., different variables but identical operations, you may use one comment above that code block. For code that has similar operations (model.add), but has different parameters, please comment on each line.
    f. Please do not combine comment blocks.