Assignment 2

Note:

This assignment should be done by each student individually. You can discuss it in general terms with other students; however, the files you hand in, e.g., the report and codes should be your own. If I find your reports/codes are the same as or similar to the other, both of you cannot get the scores for this assignment.

1. Problem Statement

In this assignment, you are required to design a Back-Propagation neural network.

2. Submissions

Finally, you are required to submit the following files:

- A report which describes the details of your implementation, including the layers of your neural network, the neurons in each layer, how to set the parameters used in the model, etc. Moreover, you can also make other analysis; for example, what is the effect of standardizing the inputs (normalizing the input). In addition, you are also required to run an SVM on this data set (you can use some open-source software of

SVM, e.g., LibSVM etc.; but you should give the detail of your running, e.g,the kernel, the method to standard your data, etc. Finaly, please compare the results of these two methods.

- The codes that are written with good style. I suggest to use Matlab; but if you like, you can also write them in other programming languages, e.g., Python, R, Java, C etc.

3. About the data

The file **Data-Ass2.mat** contains all the training samples. To use these samples, some of them can be selected randomly for training your model, and the left ones can be used to test your model. It will be much better, if you can test your model on this data set using cross-validation or use cross-validation to determine the parameters or structure of your model.