CSE 476 Machine Learning Lab 3
21-22 March 2022

1. Study the implementation **(NumPy only)** of a single layer neural network in the following tutorial:
   https://colab.research.google.com/github/chokkan/deeplearningclass/blob/master/mlp_binary.ipynb
   After reading the tutorial, you should be able to implement following by yourself:

   Single Layer Perceptron
   Single Layer Perceptron with mini batch
   Single Layer Perceptron with Stochastic Gradient Descent

2. Discuss about different implementations and network parameters.
3. Load Iris Dataset:
   https://scikit-learn.org/stable/modules/generated/sklearn.datasets.load_iris.html
4. Visualize the data (Seaborn is a handy option).
5. Encode the Species names with numbers.
6. Implement a Single Layer Perceptron (above 3 variations) for classifying the Iris Species.
   (Since it is a multiclass classification, you need more than one output neurons).
7. Show the training accuracy in a plot for each implementation.
8. Explain the differences in implementations and state your observation.
9. Submit your notebook in the classroom in the format Lab3_FullRegistrationNumber.ipynb. or Lab3_FullRegistrationNumber1_ FullRegistrationNumber2.ipynb.