

COM 424 E: NEURAL NETWORKS
CAT 1 (20 marks)
Due Sunday April 18th 2021

Please read the instructions carefully and implement the code in Python. You can use a stand alone Python notebook (preferred) or Google colab (make sure you enable me to view the code when sending the link)

Your code should be well commented and organized.

Use **Multilayer Perceptron** library in sklearn

Submission: You are required to submit a zipped folder with two items

- 1) A Python code(notebook or Colab link)
- 2) A one page report summarizing your findings

Send the zipped file to medynac@gmail.com

Car Classification Problem

The link to the dataset is

<https://archive.ics.uci.edu/ml/datasets/Car+Evaluation>

Download the data folder and use any text reader such as notepad to open the file. Ensure that you convert the data to .csv datatype.

Read the description of the data to understand the role of each of the attributes.

Implement a multilayer perceptron for Car Classification Problem in Python.

You are given a multivariate classification data set, which contains various description for the car

Here are some features that you must include as you implement the overall steps of building a model.

- Train a multilayer perceptron using the **rectified linear unit** function
- Chose a stochastic gradient descent solver

`solver={'lbfgs', 'sgd', 'adam'}, default='adam'`

- Use an adaptive learning rate
**learning_rate{'constant', 'invscaling', 'adaptive'},
default='constant'**
- **Use shufflebool, default=True to shuffle data in each iterations**
- Use the **score**(X, y[, sample_weight]) function to get the score of the model
- Calculate the confusion matrix for the data points in your test set using the discrimination rule you will develop using the trained multilayer perceptron.