WARSAW UNIVERSITY OF TECHNOLOGY
Faculty of Mathematics
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Multi-Layer Perceptron

Neural Network

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Multi-Layer Neural Network

The project aim to crate MLP algorithm with work with different data-sets. I choose two dataset (Iris and Car Evalution) from UC Irvine Machine Learning Repository and Mnist data-set crated by Yann LeCun, I chose backpropagation as a learning method.

Mnist contains 60000 examples, and the test set 10000 examples.

Iris Data-Set contains 150 examples, and 5 attributes: sepal length in cm, sepal width in cm, petal length in cm, petal width in cm and as a classifier name of iris.

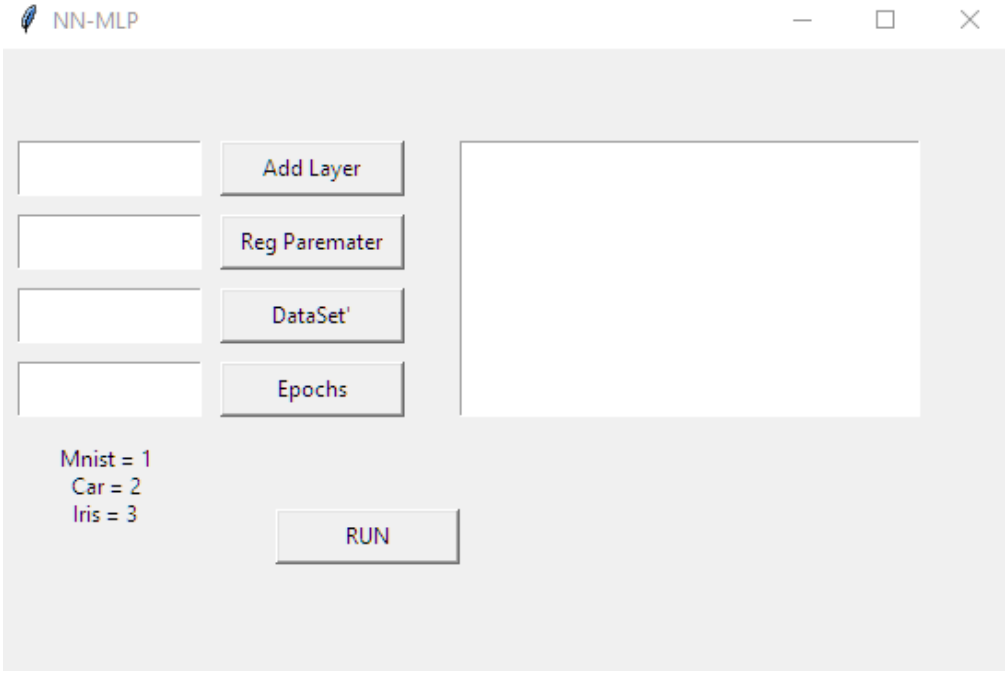
Example : 5.0,3.5,1.3,0.3,Iris-setosa

Car Evaluation Data-Set contains 1728 examples and 6 attributes: buying, maint, doors, persons, lug_boot and as a classifier safety.

Example: vhigh,vhigh,2,2,small,low,unacc

In this program, if graph directly go to 0, it is mean validation set start to increase.

Usage and Tests:



Add Layer: Adding layer with in entered neuron number, input type int.

Regularization Parameter: This is a form of regression, that constrains/ regularizes or shrinks the coefficient estimates towards zero. In other words, this technique discourages learning a more complex or flexible model, so as to avoid the risk of overfitting. input type float.

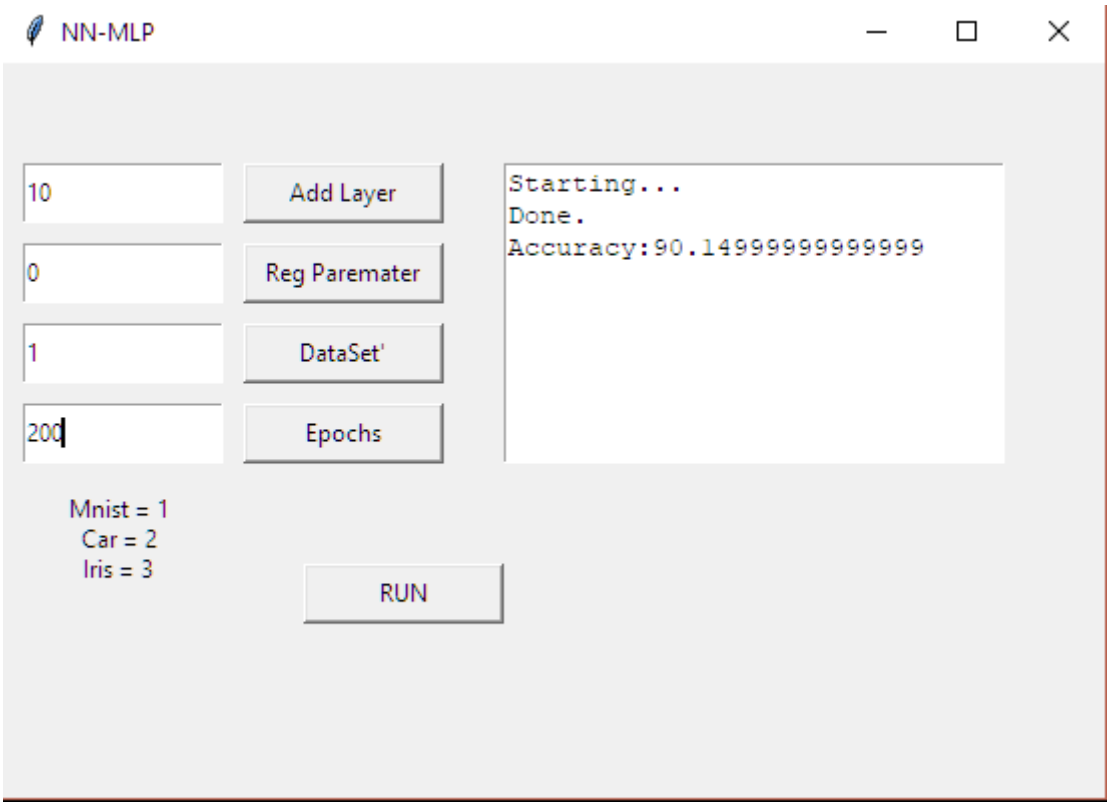
Dataset: For choosing data set according to their codes, Mnist=1, Car=2, Iris=3.

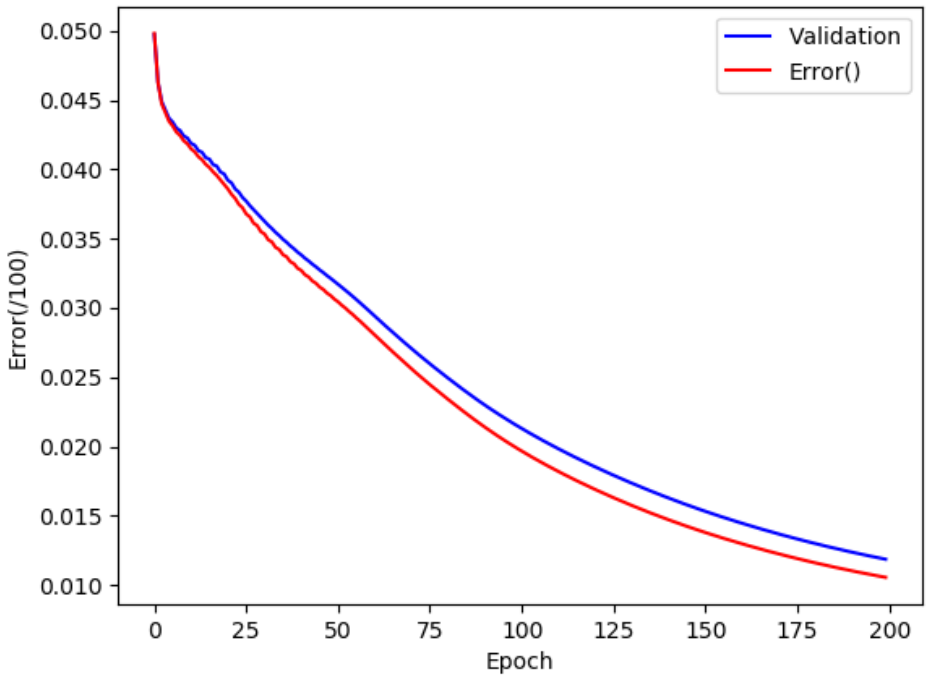
Epochs: Declare number of iteration number, input type int.

Run: Start training, learning and testing phases.

With Mnist

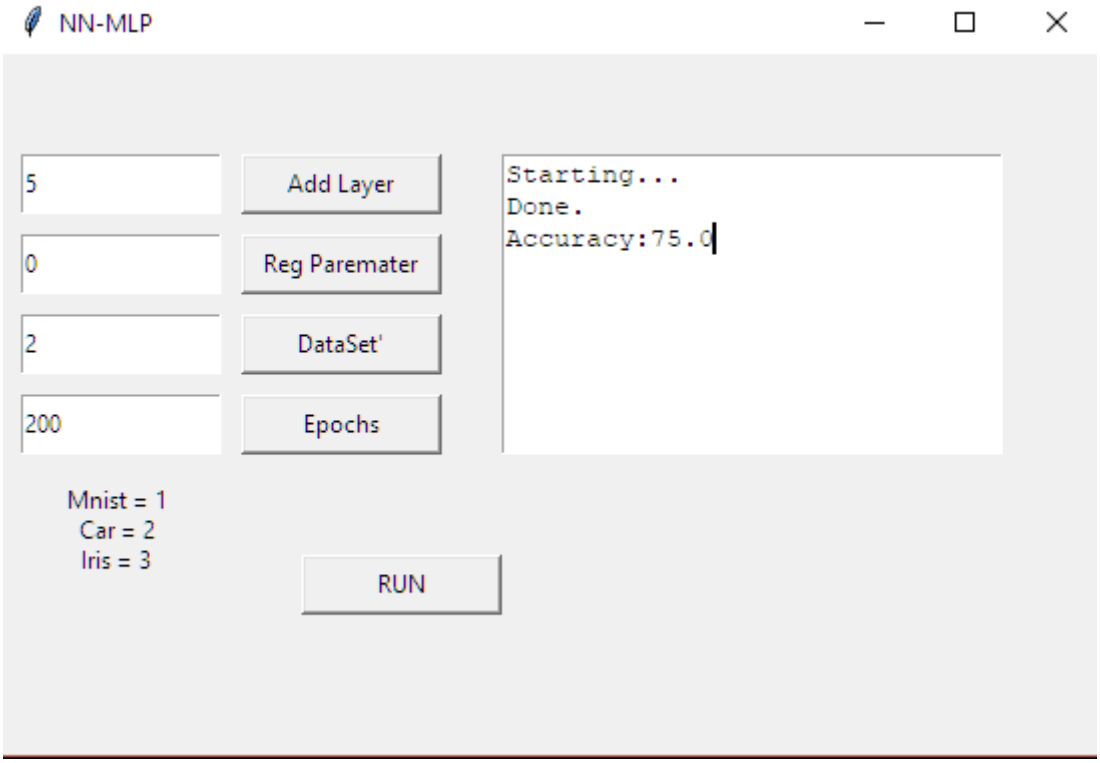
Input: two hidden layers with 10 neurons and 200 iteration

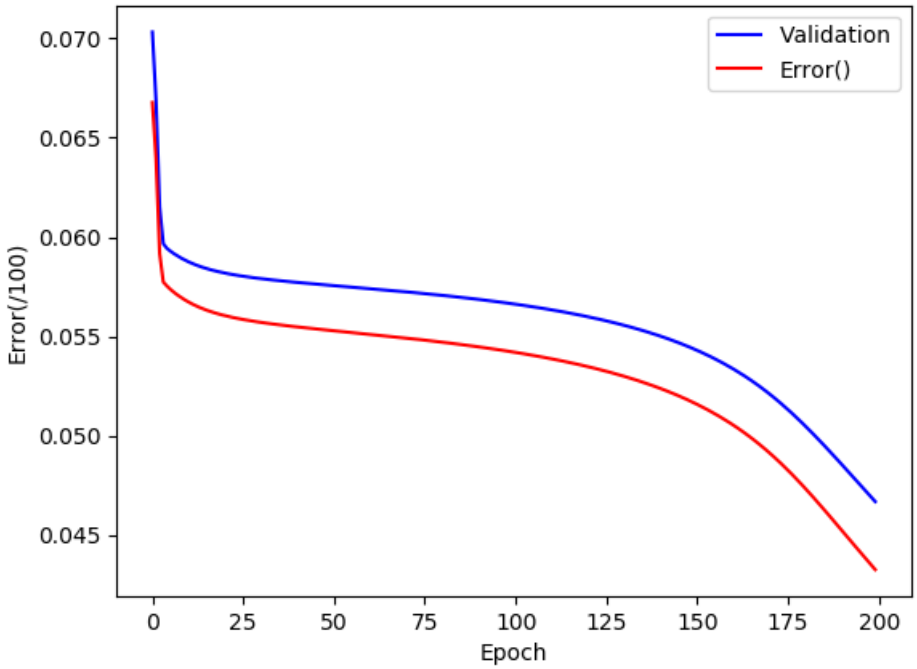




With Car Evaluation

Input: two hidden layers with 5 neurons and 200 iteration





With Iris

Input: two hidden layers with 10 neurons and 100 iteration