Deep Learning – Project: Part 3

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In the previous part of the project we built a model of logistic regression that classifies the presence of heart disease in the patient.
In the current part of the project we implemented the model with a neural network.
Our results have improved slightly in the new model, in the previous model the average test accuracy was 0.8 and in the new model we got average test accuracy of 0.85.
In the MLP model we used one hidden layer with 10 nodes. This number of layers and nodes were chosen after several experiments with different parameters.
In order to reduce the train error, we replaced the "GradientDescentOptimizer" with "AdamOptimizer", and the initial values of the weights we changed from zero to random values.

Below is a comparison between the random results of the previous model ("**LOG**") and the current one ("**MLP**"):

```
Summary:                              MLP Test results: 80 / 91
Alpah:  0.0001                        Accuracy:  0.879
Iterations:  70000                    Recall:    0.947
                                      Precision: 0.800
Total patients:  303                  F-Measure: 0.867
Train:  212
Test:  91                             LOG Test results: 76 / 91
                                      Accuracy:  0.835
MLP - Train accuracy:  0.840          Recall:    0.895
LOG - Train accuracy:  0.821          Precision: 0.756
                                      F-Measure: 0.819
MLP - Accuracy:  0.879
LOG - Accuracy:  0.835
```

The full screenshot is in the "Screenshots" folder ("pic1").

The .rar file also contains:

- **mlp.py** - The code of the neural network with notes.
- **myFunc.py –** Functions for our model.
- **Screenshots** - More screenshots of running the model.
- **DataSet –** our data set.