Analysis

After using the L-neural network to try a custom dataset, the following results were got.

Dataset

CIFAR10

Sizes:

- The training set contains about 250 images of airplanes and 250 images of cats.
- The testing set contains about 50 images of airplanes and 50 images of cats.
- Each image is 32x32x3.

Comparison

Logistic Regression

The best results were achieved by having the following hyperparameters:

- Step size: 0.005
- Number of iterations: 10000

Providing these results:

Accuracy over training set: **95%**

Accuracy over testing set: **80%**

4-Layer Neural network

Data will be in the format *train accuracy/test accuracy (%)*

Epochs/Learning rate	1000	3000	5000
0.001	70.2/76	84.6/84	89.4/83
0.005	84.4/82	87.4/79	98.2/86
0.0075	85.2/83	**98/88**	99/86

Conclusion

It’s possible to see that the neural network outperformed the logistic regression approach in most cases. And it’s even better to tune the hyperparameters in order to get even better results.