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**Analysis of Logistic Regression and MLP Models on the Iris Dataset**

In this assignment, I trained both Logistic Regression and MLP (Multi-Layer Perceptron) models on the Iris flower dataset using scikit-learn and Keras. The goal was to compare different settings and see how well the models perform and generalize.

For Logistic Regression, as per requirement I tried different solvers (liblinear, lbfgs, saga, and newton-cg) and tested how performance changed with different regularization values (C = 0.01, 0.1, 1, 10). I found that when C was higher due to less regularization, the accuracy improved. The best results came from lbfgs, saga, and newton-cg solvers with C = 10, all reaching 100% accuracy. The liblinear solver did not perform as well, especially with smaller C values.

I also trained MLP models. The model in scikit-learn had one hidden layer with 10 neurons and reached 96.67% accuracy. Then I trained a similar MLP using Keras, adding a dropout layer to prevent overfitting. The Keras model got 97% accuracy, and by checking the training and validation accuracy over time, we saw that the model generalized well and didn’t overfit.

Overall, both models worked very well on this small dataset. Logistic Regression did best with certain solvers and less regularization. The MLP models also performed strongly, and using dropout in Keras helped keep the model balanced and prevent overfitting.