Iris-Dataset ANN

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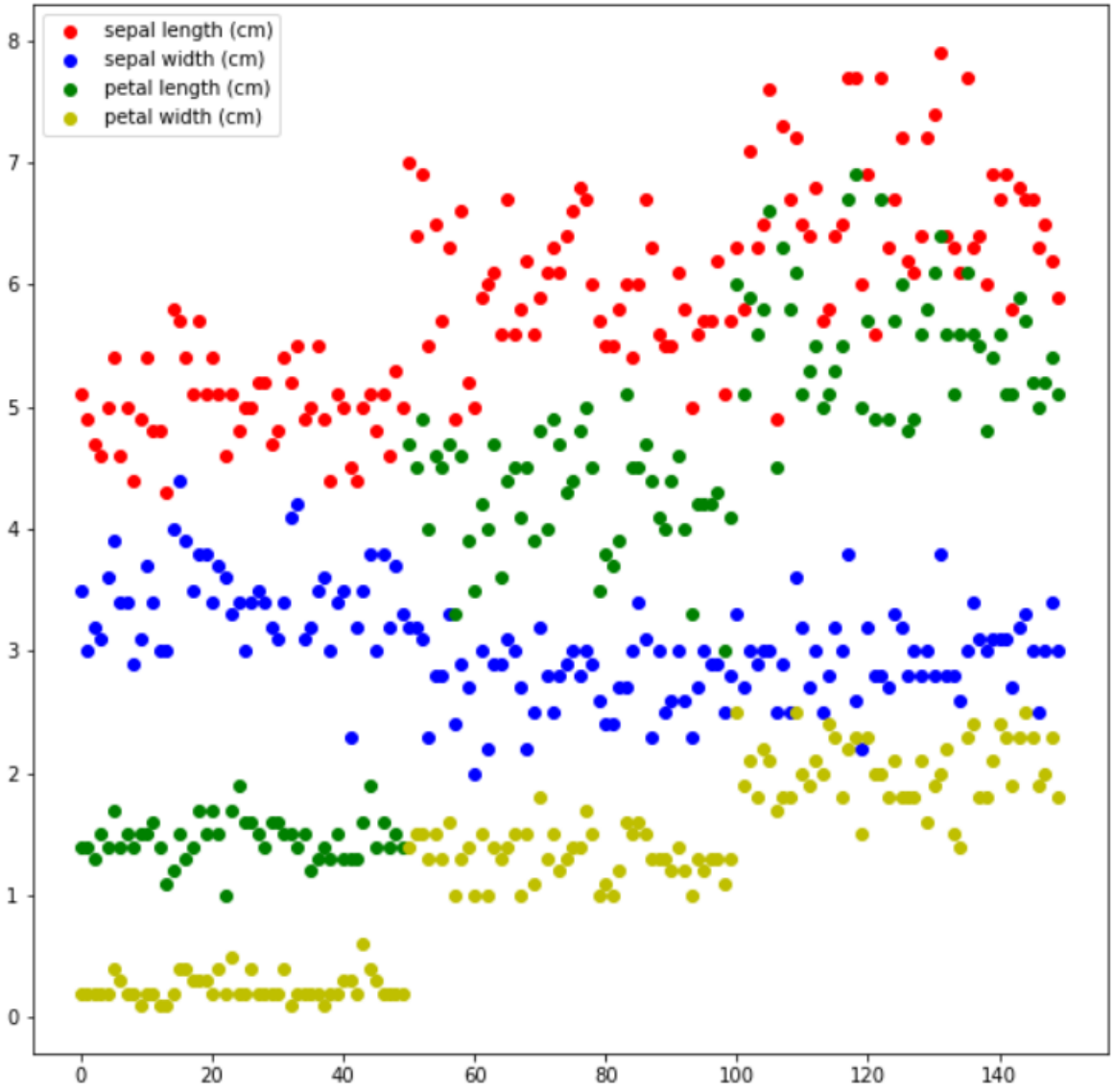
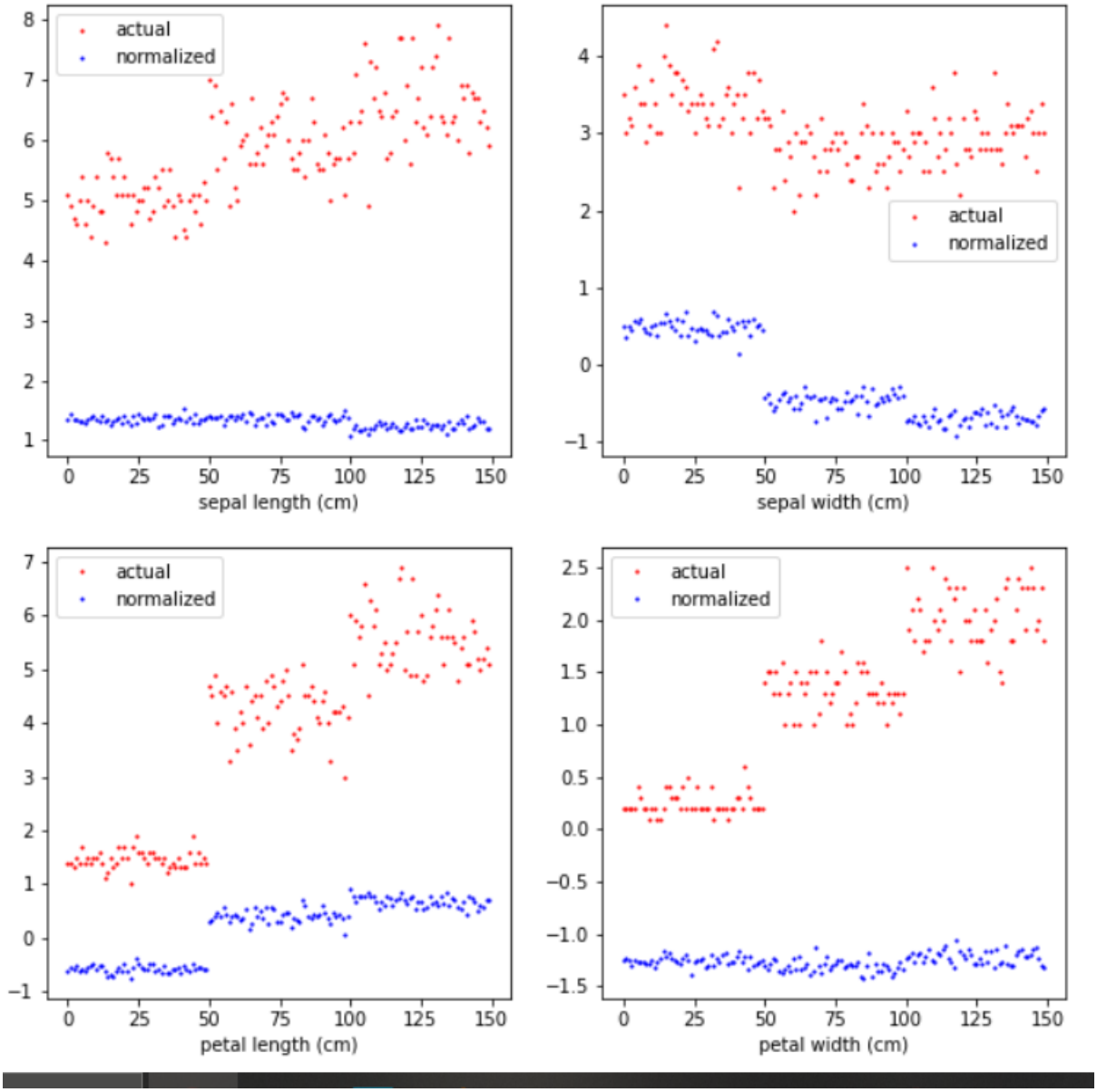
The Iris Dataset

The iris dataset used contains 150 examples that has 3 classes and each class has 50 examples. There are four features with three of them being linearly separable unlike the fourth.



Normalization

I used keras.layer.LayerNormalization to normalize the dataset



Model

The model has the following structure that is self-explanatory.

1. Normalization Layer
2. Dense layer with 16 neurons and relu activation
3. Dense layer with 32 neurons and relu activation

4. Dense layer with 32 neurons and relu activation
5. Dense layer with 64 neurons and relu activation
6. Dense layer with 3 (n_classes) neurons and relu activation

This structure was decided after training and iteratively altering values for best performance.

Model Compilation

Loss Function
The loss function used was SparseCategoricalCrossEntropyLoss due to the purpose of classification and this being one of the most widely used lost functions for the purpose.

Learning Rate
Learning rate was made to decay exponentially as the epochs increase to converge in better to the minimum loss function.

Optimizer
Stochastic Gradient Descent

Accuracy
SparceCategoricalAccuracy

Model Training

The model was trained for 30 epochs.

Callbacks

1. *Save the best model:* The weights of the model with best validation accuracy was saved to use for predictions in future
2. *Tensorboard:* Tensorboard callbacks were used to visualise training

Model Evaluation

	precision	recall	f1-score	support
0	1.00	1.00	1.00	19
1	0.93	0.93	0.93	15
2	0.94	0.94	0.94	16
accuracy			0.96	50
macro avg	0.96	0.96	0.96	50
weighted avg	0.96	0.96	0.96	50