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J016

B.Tech (Data Science) – 3rd Year

# Practical- 1

**Aim:**

To build and run a basic Neural Network.

**Observations:**

1. When a simple sequential model with two dense layers was run on the dummy data, the accuracy was 49.6% and it remained constant for all the iterations, from Epoch 1 to Epoch 10.
2. In Exercise 1, where there were categorical labels that were one-hot encoded, the accuracy started of with 49.6% in the first epoch and reached 59.8% in the 10th epoch. When EPOCH=100, accuracy rose to 92.1%
3. In Exercise 2, with the MNIST dataset, three layers were added, and the final accuracy for the 10th epoch was:

Epoch 10/10

60000/60000 [==============================] - 16s 269us/step - loss: 0.0474 - acc: 0.9917 - val\_loss: 0.1469 - val\_acc: 0.9806

1. For the CIFAR10 dataset, there were 3 layers and accuracy for 10th epoch was:

Epoch 10/10

50000/50000 [==============================] - 37s 732us/step - loss: 1.2928 - acc: 0.5364 - val\_loss: 1.4117 - val\_acc: 0.5050

1. For the Iris dataset, there were 3 layers and accuracy after taking EPOCH=200 was 96.62%

**Conclusion:**

We learnt how to build a sequential neural network model using Keras and how to process data to prepare it for a neural network.