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<u>ARTIFICIAL INTELLIGENCE LAB</u> <u>EXPERIMENT N0: 12</u>

IMPLEMENTATION OF DEEP LEARNING – KERAS-MODEL

Working Principle:

Keras is a deep learning algorithm toll that wraps the efficient numerical computation libraries <u>Theano</u> and <u>TensorFlow</u> and allows you to define andtrain neural network models in just a few lines of code.

The steps to be followed are:

- 1. Load Data.
- 2. Define Keras Model.
- 3. Compile Keras Model.
- 4. Fit Keras Model.
- 5. Evaluate Keras Model.
- 6. Tie It All Together.
- 7. Make Predictions

Source code:

first neural network with keras make predictions

from numpy import loadtxt

from keras.models import Sequential

from keras.layers import Dense

load the dataset

dataset = loadtxt('pima-indians-diabetes.csv', delimiter=',')

split into input (X) and output (y) variables

X = dataset[:,0:8]

y = dataset[:,8]

define the keras model

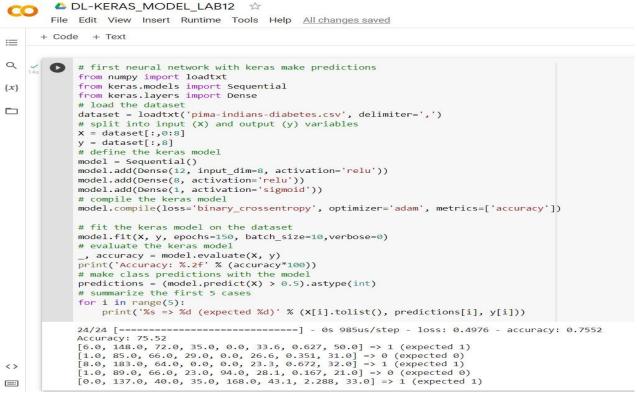
model = Sequential()

model.add(Dense(12, input_dim=8, activation='relu'))

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model.add(Dense(8, activation='relu'))
model.add(Dense(1, activation='sigmoid'))
# compile the keras model
model.compile(loss='binary_crossentropy', optimizer='adam', metrics=['accurac y'])

# fit the keras model on the dataset
model.fit(X, y, epochs=150, batch_size=10,verbose=0)
# evaluate the keras model
_, accuracy = model.evaluate(X, y)
print('Accuracy: %.2f' % (accuracy*100))
# make class predictions with the model
predictions = (model.predict(X) > 0.5).astype(int)
# summarize the first 5 cases
for i in range(5):
    print('%s => %d (expected %d)' % (X[i].tolist(), predictions[i], y[i]))
```

Output:



Result:

Hence, the Implementation of Deep Learning for Keras Model is done successfully.