AMIT SRIVASTAV
RA1911003010633
ARTIFICIAL INTELLIGENCE LAB
EXPERIMENT NO: 12

IMPLEMENTATION OF DEEP LEARNING – KERAS-MODEL

Working Principle:

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

The steps to be followed are:

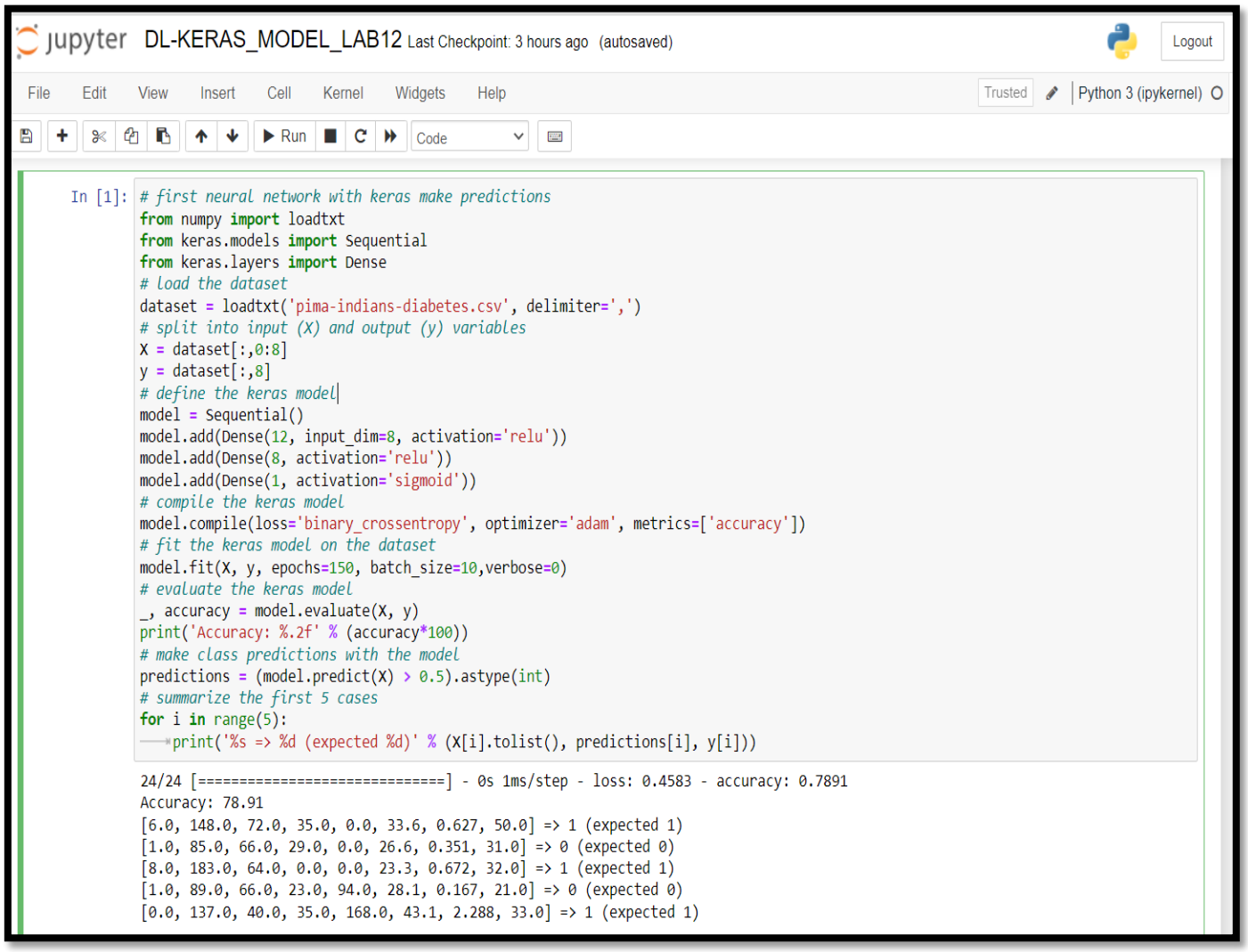
1. Load Data.
2. Define Keras Model.
3. Compile Keras Model.
4. Fit Keras Model.
5. Evaluate Keras Model.
6. Tie It All Together.
7. Make Predictions

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

```
# 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.