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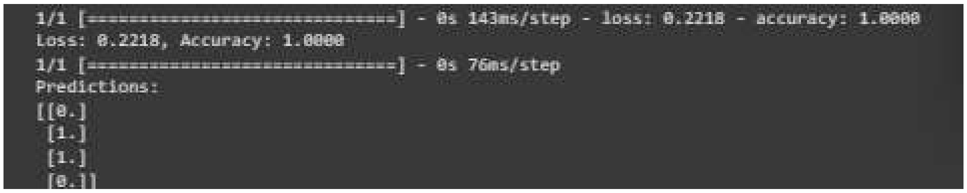
#DL_2
import numpy as np
from keras.models import Sequential
from keras.layers import Dense
# XOR input data
X = np.array([[0, 0], [0, 1], [1, 0], [1, 1]])
# Corresponding XOR output data
Y = np.array([[0], [1], [1], [0]])
# Create a sequential model

model =Sequential()
# Add a hidden layer with 8 neurons and 'relu' activation function
model.add (Dense (8, input_dim=2, activation='relu'))
# Add the output layer with 1 neuron and 'sigmoid' activation function
model.add(Dense (1, activation='sigmoid'))
# Compile the model using binary cross-entropy loss and Adam optimizer
model.compile(loss='binary_crossentropy', optimizer='adam',
metrics=['accuracy'])
# Train the model for 1000 epochs
model.fit (X, Y, epochs=1000, verbose=0)
#Evaluate the model
loss, accuracy = model.evaluate(X, Y)
print (f"Loss: {loss:.4f}, Accuracy: {accuracy:.4f}")
# Make predictions
predictions = model.predict (X)
rounded_predictions = np.round (predictions)
print("Predictions:")
print (rounded_predictions)
```



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1/1 [==============================] - 0s 143ms/step - loss: 0.2218 - accuracy: 1.0000
Loss: 0.2218, Accuracy: 1.0000
1/1 [==============================] - 0s 76ms/step
Predictions:
[[0.]
 [1.]
 [1.]
 [0.]]
```