exp8:sigmoid using keras

import tensorflow.compat.v1 as tf

tf.disable\_v2\_behavior()

import numpy as np

from keras.models import Sequential

from keras.layers import Dense, Activation

X = np.array([[0, 0, 1], [1, 1, 1], [1, 0, 1], [0, 1, 1]])

y = np.array([0,1,1,0])

model = Sequential([Dense(2, input\_shape=(9,)),Activation('sigmoid'),Dense(10),Activation('sigmoid'),])

model = Sequential()

model.add(Dense(2, input\_dim=9))

model.add(Activation('sigmoid'))

print(model)

import numpy as np

from keras.models import Sequential

from keras.layers import Dense

from keras.optimizers import SGD

import matplotlib.pyplot as plt

# Generate dummy data

X\_train= np.array([[0, 0], [0, 1], [1, 0], [1, 1]])

y\_train = np.array([[0],[1],[1],[0]])

sgd = SGD(lr=0.03)

model = Sequential()

model.add(Dense(20, input\_dim=2, activation='sigmoid'))

model.add(Dense(10, input\_dim=2, activation='sigmoid'))

model.add(Dense(1, activation='sigmoid'))

model.compile(loss='binary\_crossentropy',optimizer=sgd,metrics=['accuracy'])

model.summary()

history=model.fit(X\_train, y\_train, epochs=9)

**output:**

Model: "sequential\_21"

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Layer (type) Output Shape Param #

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dense\_61 (Dense) (None, 20) 60

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dense\_62 (Dense) (None, 10) 210

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dense\_63 (Dense) (None, 1) 11

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Total params: 281

Trainable params: 281

Non-trainable params: 0

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Epoch 1/9

4/4 [==============================] - 0s 14ms/step - loss: 0.6986 - accuracy: 0.5000

Epoch 2/9

4/4 [==============================] - 0s 429us/step - loss: 0.6983 - accuracy: 0.5000

Epoch 3/9

4/4 [==============================] - 0s 385us/step - loss: 0.6980 - accuracy: 0.5000

Epoch 4/9

4/4 [==============================] - 0s 348us/step - loss: 0.6977 - accuracy: 0.5000

Epoch 5/9

4/4 [==============================] - 0s 393us/step - loss: 0.6974 - accuracy: 0.5000

Epoch 6/9

4/4 [==============================] - 0s 494us/step - loss: 0.6971 - accuracy: 0.5000

Epoch 7/9

4/4 [==============================] - 0s 449us/step - loss: 0.6969 - accuracy: 0.5000

Epoch 8/9

4/4 [==============================] - 0s 439us/step - loss: 0.6967 - accuracy: 0.5000

Epoch 9/9

4/4 [==============================] - 0s 412us/step - loss: 0.6965 - accuracy: 0.5000