Phase 4 Project Notebook by Ryan S. Chung

Introduction

In [1]:
```
import pandas as pd
import numpy as np
import os , shutil
import glob
```

In [2]:
```
import cv2
import matplotlib.image as mpimg
```

In [3]:
```
import matplotlib.pyplot as plt
%matplotlib inline
import keras
from sklearn.model_selection import train_test_split
```

In [4]:
```
from keras.models import Sequential
from keras.layers import Dense
import matplotlib.image as mpimg
```

In [5]:
```
import time
import matplotlib.pyplot as plt
import scipy
from PIL import Image
from scipy import ndimage
from keras.preprocessing.image import ImageDataGenerator, array_to_img, img_to_array, load_img
```

In [6]:
```
from matplotlib import image
from matplotlib import pyplot
import tensorflow as tf
from tensorflow import keras
from tensorflow.keras import layers
```

Initial MLP Creation

In order to create our MLP model, the images used from the training folder and validation folder were used. The images were scaled and turned into vectors.

In [7]:
```
Train_NORMAL = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\train\\NORMAL\\*.jpeg")
Train_PNEUMONIA = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\train\\PNEUMONIA\\*jpe
```

In [8]:
```
train_data = []
train_labels = []
```

In [9]:
```
for i in Train_NORMAL:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    train_data.append(image)
    train_labels.append(0)

for i in Train_PNEUMONIA:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    train_data.append(image)
    train_labels.append(1)
```

In [10]:
```
train_data = np.array(train_data)
train_labels = np.array(train_labels)

# X_train, X_test, y_train, y_test = train_test_split(data, labels, test_size=0.2, random_state=42)
```

In [11]:
```
Val_NORMAL = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\val\\NORMAL\\*.jpeg")
Val_PNEUMONIA = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\val\\PNEUMONIA\\*jpeg")
```

In [12]:
```
val_data = []
```

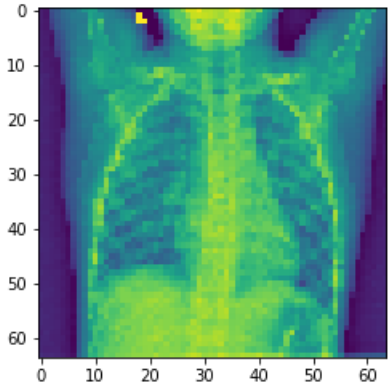
```
val_labels = []
```

In [13]:
```
for i in Val_NORMAL:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    val_data.append(image)
    val_labels.append(0)

for i in Val_PNEUMONIA:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    val_data.append(image)
    val_labels.append(1)
```

In [14]:
```
val_data = np.array(val_data)
val_labels = np.array(val_labels)
```

In [15]:
```
sample_image = train_data[0]
sample_label = train_labels[0]
display(plt.imshow(sample_image))
print('Label: {}'.format(sample_label))
```

```
<matplotlib.image.AxesImage at 0x1b29dc04760>
Label: 0
```



In [16]:
```
sample_image
```

Out[16]:
```
array([[ 22,  16,  63, ..., 161,  95,  96],
       [ 22,  15,  57, ...,  98,  92,  91],
       [ 22,  18,  51, ..., 102,  90,  89],
       ...,
       [ 29,  27,  27, ...,  19,  23,  24],
       [ 28,  25,  25, ...,  21,  25,  24],
       [ 34,  29,  30, ...,  71,  73,  74]], dtype=uint8)
```

In [17]:
```
print(train_data.shape)
val_data.shape
```

```
(5216, 64, 64)
```

Out[17]:
```
(16, 64, 64)
```

In [18]:
```
print(val_data.shape)
```

```
(16, 64, 64)
```

In [19]:
```
train_data = train_data.reshape(5216, 4096).astype('float')
val_data = val_data.reshape(16, 4096).astype('float')
```

In [20]:
```
print(train_data.shape)
val_data.shape
```

```
(5216, 4096)
```

Out[20]:
```
(16, 4096)
```

In [21]:
```
train_data /= 255.
val_data /= 255.
```

In [22]:
```
val_labels[:4]
```

Out[22]:
```
array([0, 0, 0, 0])
```

In [23]:
```
train_labels = keras.utils.to_categorical(train_labels, 2)
val_labels = keras.utils.to_categorical(val_labels, 2)
```

In [24]:
```
train_labels[0]
```

Out[24]:
```
array([1., 0.], dtype=float32)
```

In [25]:
```
val_labels[0]
```

Out[25]:
```
array([1., 0.], dtype=float32)
```

In [26]:
```
Model_1 = Sequential()
Model_1.add(Dense(64, activation = 'tanh', input_shape = (4096,)))
Model_1.add(Dense(2, activation = 'softmax'))
```

In [27]:
```
Model_1.compile(loss = 'categorical_crossentropy', optimizer = 'sgd', metrics = ['acc'])
```

In [28]:
```
Model_1.summary()
```

```
Model: "sequential"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
dense (Dense)                (None, 64)                262208
_________________________________________________________________
dense_1 (Dense)              (None, 2)                 130
=================================================================
Total params: 262,338
Trainable params: 262,338
Non-trainable params: 0
_________________________________________________________________
```

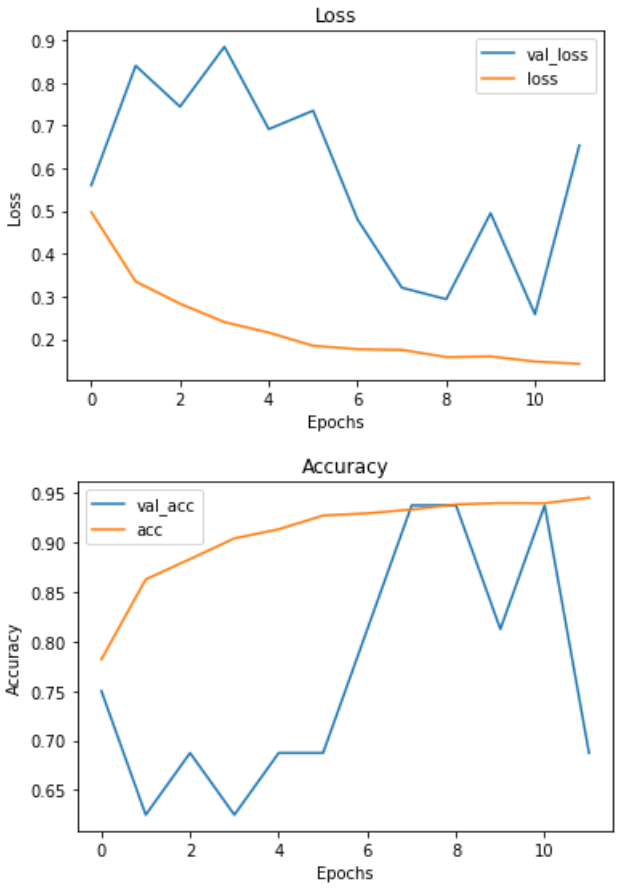
In [29]:
```
results_1 = Model_1.fit(train_data, train_labels, epochs = 12, batch_size = 64, validation_data = (val_data, val_
```

```
Epoch 1/12
82/82 [==============================] - 0s 3ms/step - loss: 0.4975 - acc: 0.7820 - val_loss: 0.5601 - val_acc:
0.7500
Epoch 2/12
82/82 [==============================] - 0s 2ms/step - loss: 0.3349 - acc: 0.8627 - val_loss: 0.8401 - val_acc:
0.6250
Epoch 3/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2829 - acc: 0.8832 - val_loss: 0.7442 - val_acc:
0.6875
Epoch 4/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2399 - acc: 0.9041 - val_loss: 0.8846 - val_acc:
0.6250
Epoch 5/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2153 - acc: 0.9133 - val_loss: 0.6916 - val_acc:
0.6875
Epoch 6/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1845 - acc: 0.9271 - val_loss: 0.7350 - val_acc:
0.6875
Epoch 7/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1765 - acc: 0.9294 - val_loss: 0.4802 - val_acc:
0.8125
Epoch 8/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1749 - acc: 0.9333 - val_loss: 0.3205 - val_acc:
0.9375
Epoch 9/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1579 - acc: 0.9385 - val_loss: 0.2934 - val_acc:
0.9375
Epoch 10/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1594 - acc: 0.9398 - val_loss: 0.4949 - val_acc:
0.8125
Epoch 11/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1476 - acc: 0.9396 - val_loss: 0.2580 - val_acc:
0.9375
Epoch 12/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1421 - acc: 0.9452 - val_loss: 0.6536 - val_acc:
0.6875
```

In [30]:
```
def visualize_training_results(results):

    history = results.history
```

```
    plt.figure()
    plt.plot(history['val_loss'])
    plt.plot(history['loss'])
    plt.legend(['val_loss', 'loss'])
    plt.title('Loss')
    plt.xlabel('Epochs')
    plt.ylabel('Loss')
    plt.show()

    plt.figure()
    plt.plot(history['val_acc'])
    plt.plot(history['acc'])
    plt.legend(['val_acc', 'acc'])
    plt.title('Accuracy')
    plt.xlabel('Epochs')
    plt.ylabel('Accuracy')
    plt.show()
```

In [31]:
```
visualize_training_results(results_1)
```



In [32]:
```
Model_2 = Sequential()
Model_2.add(Dense(64, activation='tanh', input_shape=(4096,)))
Model_2.add(Dense(32, activation='tanh'))
Model_2.add(Dense(2, activation='softmax'))
```

In [33]:
```
Model_2.summary()
```

```
Model: "sequential_1"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
dense_2 (Dense)              (None, 64)                262208
_________________________________________________________________
dense_3 (Dense)              (None, 32)                2080
_________________________________________________________________
dense_4 (Dense)              (None, 2)                 66
=================================================================
Total params: 264,354
Trainable params: 264,354
```

```
Non-trainable params: 0
_________________________________________________________________
```

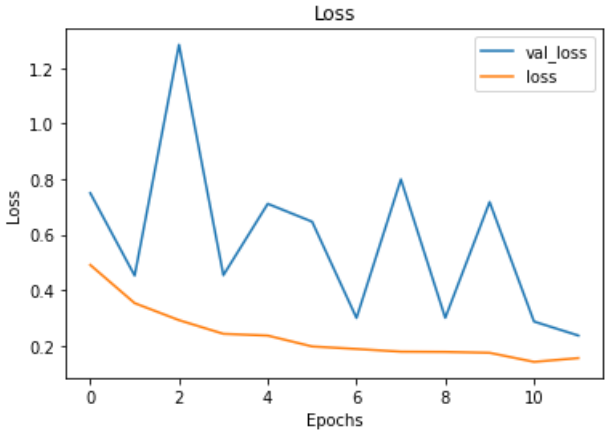
In [34]:
```
Model_2.compile(loss='categorical_crossentropy', optimizer='sgd', metrics=['acc'])
```

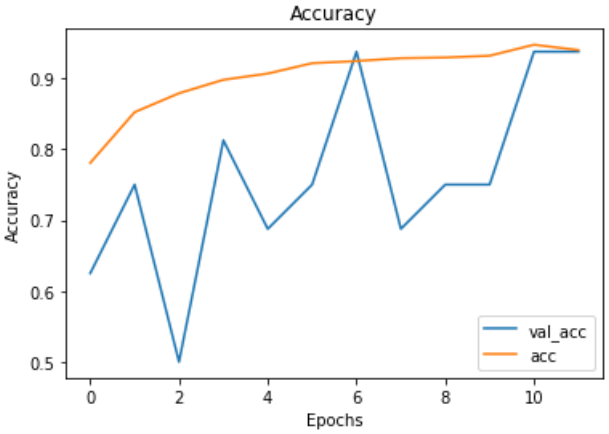
In [35]:
```
results_2 = Model_2.fit(train_data, train_labels, batch_size=64, epochs=12, validation_data=(val_data, val_labels
```

```
Epoch 1/12
82/82 [==============================] - 0s 3ms/step - loss: 0.4901 - acc: 0.7807 - val_loss: 0.7490 - val_acc:
0.6250
Epoch 2/12
82/82 [==============================] - 0s 2ms/step - loss: 0.3525 - acc: 0.8522 - val_loss: 0.4517 - val_acc:
0.7500
Epoch 3/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2912 - acc: 0.8788 - val_loss: 1.2836 - val_acc:
0.5000
Epoch 4/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2420 - acc: 0.8978 - val_loss: 0.4533 - val_acc:
0.8125
Epoch 5/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2356 - acc: 0.9066 - val_loss: 0.7106 - val_acc:
0.6875
Epoch 6/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1965 - acc: 0.9212 - val_loss: 0.6459 - val_acc:
0.7500
Epoch 7/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1874 - acc: 0.9243 - val_loss: 0.2991 - val_acc:
0.9375
Epoch 8/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1777 - acc: 0.9283 - val_loss: 0.7986 - val_acc:
0.6875
Epoch 9/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1769 - acc: 0.9293 - val_loss: 0.2995 - val_acc:
0.7500
Epoch 10/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1736 - acc: 0.9317 - val_loss: 0.7169 - val_acc:
0.7500
Epoch 11/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1410 - acc: 0.9473 - val_loss: 0.2863 - val_acc:
0.9375
Epoch 12/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1545 - acc: 0.9398 - val_loss: 0.2358 - val_acc:
0.9375
```

In [36]:
```
def visualize_training_results(results):
    history = results.history

    plt.figure()
    plt.plot(history['val_loss'])
    plt.plot(history['loss'])
    plt.legend(['val_loss', 'loss'])
    plt.title('Loss')
    plt.xlabel('Epochs')
    plt.ylabel('Loss')
    plt.show()

    plt.figure()
    plt.plot(history['val_acc'])
    plt.plot(history['acc'])
    plt.legend(['val_acc', 'acc'])
    plt.title('Accuracy')
    plt.xlabel('Epochs')
    plt.ylabel('Accuracy')
    plt.show()
```

In [37]:
```
visualize_training_results(results_2)
```





In [38]:
```
Model_3 = Sequential()
Model_3.add(Dense(64, activation='relu', input_shape=(4096,)))
Model_3.add(Dense(32, activation='relu'))
Model_3.add(Dense(2, activation='softmax'))
```

In [39]:
```
Model_3.summary()
```

```
Model: "sequential_2"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
dense_5 (Dense)              (None, 64)                262208
_________________________________________________________________
dense_6 (Dense)              (None, 32)                2080
_________________________________________________________________
dense_7 (Dense)              (None, 2)                 66
=================================================================
Total params: 264,354
Trainable params: 264,354
Non-trainable params: 0
_________________________________________________________________
```

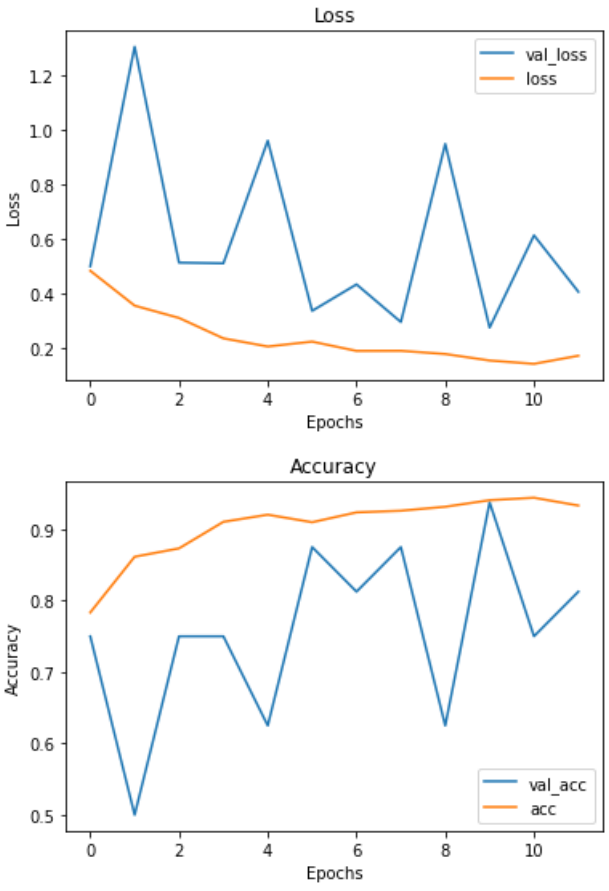
In [40]:
```
Model_3.compile(loss='categorical_crossentropy', optimizer='sgd', metrics=['acc'])
```

In [41]:
```
results_3 = Model_3.fit(train_data, train_labels, epochs=12, batch_size=64, validation_data=(val_data, val_labels
```

```
Epoch 1/12
82/82 [==============================] - 0s 3ms/step - loss: 0.4836 - acc: 0.7834 - val_loss: 0.4999 - val_acc:
0.7500
Epoch 2/12
82/82 [==============================] - 0s 2ms/step - loss: 0.3556 - acc: 0.8614 - val_loss: 1.3058 - val_acc:
0.5000
Epoch 3/12
82/82 [==============================] - 0s 2ms/step - loss: 0.3105 - acc: 0.8731 - val_loss: 0.5135 - val_acc:
0.7500
Epoch 4/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2355 - acc: 0.9103 - val_loss: 0.5109 - val_acc:
0.7500
Epoch 5/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2057 - acc: 0.9202 - val_loss: 0.9610 - val_acc:
0.6250
```

```
Epoch 6/12
82/82 [==============================] - 0s 2ms/step - loss: 0.2235 - acc: 0.9097 - val_loss: 0.3364 - val_acc:
0.8750
Epoch 7/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1895 - acc: 0.9235 - val_loss: 0.4336 - val_acc:
0.8125
Epoch 8/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1897 - acc: 0.9258 - val_loss: 0.2955 - val_acc:
0.8750
Epoch 9/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1781 - acc: 0.9314 - val_loss: 0.9491 - val_acc:
0.6250
Epoch 10/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1542 - acc: 0.9406 - val_loss: 0.2749 - val_acc:
0.9375
Epoch 11/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1420 - acc: 0.9440 - val_loss: 0.6136 - val_acc:
0.7500
Epoch 12/12
82/82 [==============================] - 0s 2ms/step - loss: 0.1717 - acc: 0.9331 - val_loss: 0.4065 - val_acc:
0.8125
```

In [42]:
```
visualize_training_results(results_3)
```



In [43]:
```
results_train = Model_3.evaluate(train_data, train_labels)
```

```
163/163 [==============================] - 0s 852us/step - loss: 0.1234 - acc: 0.9509
```

In [44]:
```
results_test = Model_3.evaluate(val_data, val_labels)
```

```
1/1 [==============================] - 0s 1ms/step - loss: 0.4065 - acc: 0.8125
```

In [45]:
```
results_train
```

Out[45]:
```
[0.1233837753534317, 0.9509202241897583]
```

In [46]:
```
results_test
```

Out[46]:
```
[0.40651610493659973, 0.8125]
```

With the final MLP model having a 95% accuracy on the training images and a 81% on the validation images, the MLP model

appears to be slightly overfitted. One item of note is that the validation folder only housed 16 images where as the training folder of images had around 5000.

Creation of CNN

In [47]:
```
# Creating a CNN
```

In [48]:
```
test_generator = ImageDataGenerator(rescale=1./255).flow_from_directory(
    "C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\test",
    target_size=(64, 64), batch_size = 180)

val_generator = ImageDataGenerator(rescale=1./255).flow_from_directory(
    "C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\val",
    target_size=(64, 64), batch_size = 200)

train_generator = ImageDataGenerator(rescale=1./255).flow_from_directory(
    "C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\train",
    target_size=(64, 64), batch_size = 200)
```

```
Found 624 images belonging to 2 classes.
Found 16 images belonging to 2 classes.
Found 5216 images belonging to 2 classes.
```

In [49]:
```
# Creating the data sets

train_images, train_labels = next(train_generator)
test_images, test_labels = next(test_generator)
val_images, val_labels = next(val_generator)
```

In [50]:
```
# Explore your dataset again

m_train = train_images.shape[0]
num_px = train_images.shape[1]
m_test = test_images.shape[0]
m_val = val_images.shape[0]

print ("Number of training samples: " + str(m_train))
print ("Number of testing samples: " + str(m_test))
print ("Number of validation samples: " + str(m_val))
print ("train_images shape: " + str(train_images.shape))
print ("train_labels shape: " + str(train_labels.shape))
print ("test_images shape: " + str(test_images.shape))
print ("test_labels shape: " + str(test_labels.shape))
print ("val_images shape: " + str(val_images.shape))
print ("val_labels shape: " + str(val_labels.shape))
```

```
Number of training samples: 200
Number of testing samples: 180
Number of validation samples: 16
train_images shape: (200, 64, 64, 3)
train_labels shape: (200, 2)
test_images shape: (180, 64, 64, 3)
test_labels shape: (180, 2)
val_images shape: (16, 64, 64, 3)
val_labels shape: (16, 2)
```

In [51]:
```
train_img = train_images.reshape(train_images.shape[0], -1)
test_img = test_images.reshape(test_images.shape[0], -1)
val_img = val_images.reshape(val_images.shape[0], -1)

print(train_img.shape)
print(test_img.shape)
print(val_img.shape)
```

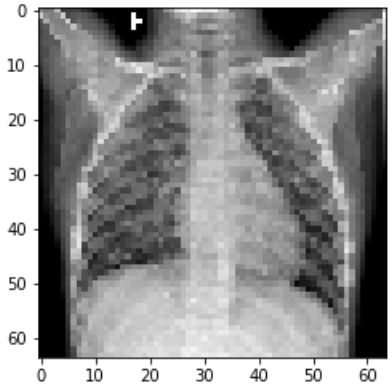
```
(200, 12288)
(180, 12288)
(16, 12288)
```

In [52]:
```
train_y = np.reshape(train_labels[:,0], (200,1))
test_y = np.reshape(test_labels[:,0], (180,1))
val_y = np.reshape(val_labels[:,0], (16,1))
```

In [53]:
```
# Sample Image Display from train
```

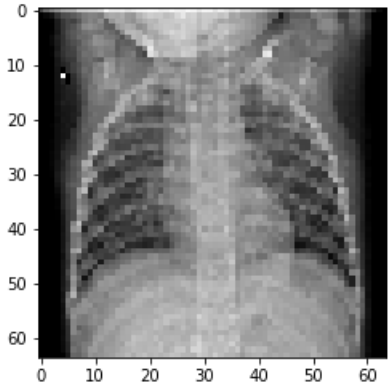
In [54]:
```
display(plt.imshow(train_images[0]))
```

```
<matplotlib.image.AxesImage at 0x1b2b8cbbc10>
```



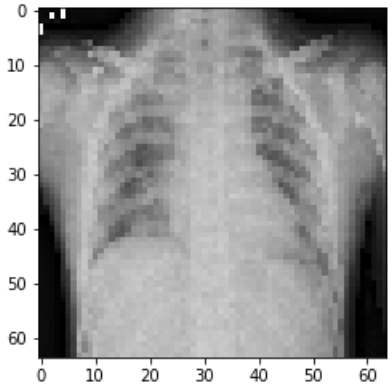
In [55]:
```
display(plt.imshow(train_images[1]))
```

```
<matplotlib.image.AxesImage at 0x1b2b8954a00>
```



In [56]:
```
display(plt.imshow(train_images[2]))
```

```
<matplotlib.image.AxesImage at 0x1b2b9143760>
```



In [57]:
```
from keras import models
from keras import layers
np.random.seed(123)

model = models.Sequential()
model.add(layers.Dense(20, activation='relu', input_shape=(12288,))) # 2 hidden layers
model.add(layers.Dense(7, activation='relu'))
model.add(layers.Dense(5, activation='relu'))
model.add(layers.Dense(1, activation='sigmoid'))
```

In [58]:
```
model.compile(optimizer='sgd',
              loss='binary_crossentropy',
              metrics=['accuracy'])

history = model.fit(train_img,
                    train_y,
```

```
                    epochs=50,
                    batch_size=32,
                    validation_data=(val_img, val_y))
```

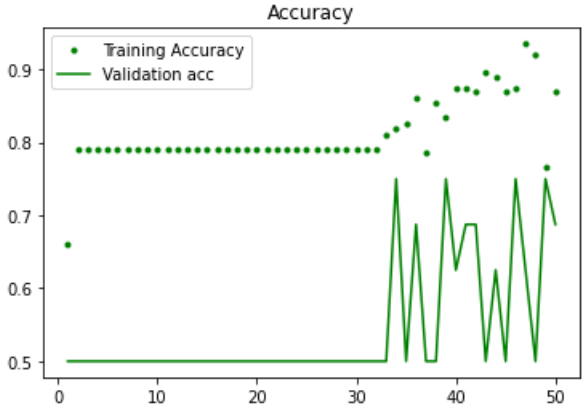
```
Epoch 1/50
7/7 [==============================] - 0s 17ms/step - loss: 0.6731 - accuracy: 0.6600 - val_loss: 0.7154 - val_ac
curacy: 0.5000
Epoch 2/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5606 - accuracy: 0.7900 - val_loss: 0.8324 - val_acc
uracy: 0.5000
Epoch 3/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5165 - accuracy: 0.7900 - val_loss: 0.9217 - val_acc
uracy: 0.5000
Epoch 4/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5146 - accuracy: 0.7900 - val_loss: 0.8925 - val_acc
uracy: 0.5000
Epoch 5/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5127 - accuracy: 0.7900 - val_loss: 0.8707 - val_acc
uracy: 0.5000
Epoch 6/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5083 - accuracy: 0.7900 - val_loss: 0.8419 - val_acc
uracy: 0.5000
Epoch 7/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5053 - accuracy: 0.7900 - val_loss: 0.9739 - val_acc
uracy: 0.5000
Epoch 8/50
7/7 [==============================] - 0s 3ms/step - loss: 0.5029 - accuracy: 0.7900 - val_loss: 0.9384 - val_acc
uracy: 0.5000
Epoch 9/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4995 - accuracy: 0.7900 - val_loss: 0.8814 - val_acc
uracy: 0.5000
Epoch 10/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4985 - accuracy: 0.7900 - val_loss: 0.8340 - val_acc
uracy: 0.5000
Epoch 11/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4964 - accuracy: 0.7900 - val_loss: 0.9429 - val_acc
uracy: 0.5000
Epoch 12/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4922 - accuracy: 0.7900 - val_loss: 0.9694 - val_acc
uracy: 0.5000
Epoch 13/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4896 - accuracy: 0.7900 - val_loss: 0.8770 - val_acc
uracy: 0.5000
Epoch 14/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4839 - accuracy: 0.7900 - val_loss: 0.8444 - val_acc
uracy: 0.5000
Epoch 15/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4808 - accuracy: 0.7900 - val_loss: 0.9040 - val_acc
uracy: 0.5000
Epoch 16/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4782 - accuracy: 0.7900 - val_loss: 0.7893 - val_acc
uracy: 0.5000
Epoch 17/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4749 - accuracy: 0.7900 - val_loss: 0.8469 - val_acc
uracy: 0.5000
Epoch 18/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4683 - accuracy: 0.7900 - val_loss: 0.8567 - val_acc
uracy: 0.5000
Epoch 19/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4581 - accuracy: 0.7900 - val_loss: 0.8827 - val_acc
uracy: 0.5000
Epoch 20/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4515 - accuracy: 0.7900 - val_loss: 0.7714 - val_acc
uracy: 0.5000
Epoch 21/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4428 - accuracy: 0.7900 - val_loss: 0.9148 - val_acc
uracy: 0.5000
Epoch 22/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4413 - accuracy: 0.7900 - val_loss: 0.8500 - val_acc
uracy: 0.5000
Epoch 23/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4254 - accuracy: 0.7900 - val_loss: 0.8626 - val_acc
uracy: 0.5000
Epoch 24/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4187 - accuracy: 0.7900 - val_loss: 0.7462 - val_acc
uracy: 0.5000
Epoch 25/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3967 - accuracy: 0.7900 - val_loss: 0.9285 - val_acc
uracy: 0.5000
Epoch 26/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3914 - accuracy: 0.7900 - val_loss: 1.0175 - val_acc
```

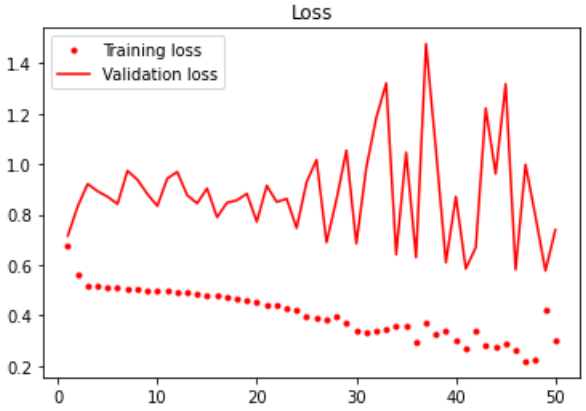
```
uracy: 0.5000
Epoch 27/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3801 - accuracy: 0.7900 - val_loss: 0.6893 - val_acc
uracy: 0.5000
Epoch 28/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3926 - accuracy: 0.7900 - val_loss: 0.8583 - val_acc
uracy: 0.5000
Epoch 29/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3698 - accuracy: 0.7900 - val_loss: 1.0547 - val_acc
uracy: 0.5000
Epoch 30/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3396 - accuracy: 0.7900 - val_loss: 0.6844 - val_acc
uracy: 0.5000
Epoch 31/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3294 - accuracy: 0.7900 - val_loss: 0.9859 - val_acc
uracy: 0.5000
Epoch 32/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3370 - accuracy: 0.7900 - val_loss: 1.1842 - val_acc
uracy: 0.5000
Epoch 33/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3418 - accuracy: 0.8100 - val_loss: 1.3213 - val_acc
uracy: 0.5000
Epoch 34/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3570 - accuracy: 0.8200 - val_loss: 0.6415 - val_acc
uracy: 0.7500
Epoch 35/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3574 - accuracy: 0.8250 - val_loss: 1.0469 - val_acc
uracy: 0.5000
Epoch 36/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2914 - accuracy: 0.8600 - val_loss: 0.6299 - val_acc
uracy: 0.6875
Epoch 37/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3710 - accuracy: 0.7850 - val_loss: 1.4780 - val_acc
uracy: 0.5000
Epoch 38/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3270 - accuracy: 0.8550 - val_loss: 1.0567 - val_acc
uracy: 0.5000
Epoch 39/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3405 - accuracy: 0.8350 - val_loss: 0.6095 - val_acc
uracy: 0.7500
Epoch 40/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3011 - accuracy: 0.8750 - val_loss: 0.8710 - val_acc
uracy: 0.6250
Epoch 41/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2696 - accuracy: 0.8750 - val_loss: 0.5852 - val_acc
uracy: 0.6875
Epoch 42/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3383 - accuracy: 0.8700 - val_loss: 0.6694 - val_acc
uracy: 0.6875
Epoch 43/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2834 - accuracy: 0.8950 - val_loss: 1.2219 - val_acc
uracy: 0.5000
Epoch 44/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2753 - accuracy: 0.8900 - val_loss: 0.9618 - val_acc
uracy: 0.6250
Epoch 45/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2892 - accuracy: 0.8700 - val_loss: 1.3185 - val_acc
uracy: 0.5000
Epoch 46/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2594 - accuracy: 0.8750 - val_loss: 0.5809 - val_acc
uracy: 0.7500
Epoch 47/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2175 - accuracy: 0.9350 - val_loss: 0.9985 - val_acc
uracy: 0.6250
Epoch 48/50
7/7 [==============================] - 0s 3ms/step - loss: 0.2226 - accuracy: 0.9200 - val_loss: 0.7928 - val_acc
uracy: 0.5000
Epoch 49/50
7/7 [==============================] - 0s 3ms/step - loss: 0.4220 - accuracy: 0.7650 - val_loss: 0.5769 - val_acc
uracy: 0.7500
Epoch 50/50
7/7 [==============================] - 0s 3ms/step - loss: 0.3011 - accuracy: 0.8700 - val_loss: 0.7394 - val_acc
uracy: 0.6875
```

In [59]:

```
train_acc = history.history['accuracy']
val_acc = history.history['val_accuracy']
train_loss = history.history['loss']
val_loss = history.history['val_loss']
epch = range(1, len(train_acc) + 1)
plt.plot(epch, train_acc, 'g.', label='Training Accuracy')
```

```
plt.plot(epch, val_acc, 'g', label='Validation acc')
plt.title('Accuracy')
plt.legend()
plt.figure()
plt.plot(epch, train_loss, 'r.', label='Training loss')
plt.plot(epch, val_loss, 'r', label='Validation loss')
plt.title('Loss')
plt.legend()
plt.show()
```





In [60]:
```
# visualize_training_results(history_A)
```

In [61]:
```
results_train = model.evaluate(train_img, train_y)
```

```
7/7 [==============================] - 0s 785us/step - loss: 0.1897 - accuracy: 0.9500
```

In [62]:
```
results_test = model.evaluate(test_img, test_y)
```

```
6/6 [==============================] - 0s 833us/step - loss: 0.6842 - accuracy: 0.6389
```

In [63]:
```
results_train
```

Out[63]:
```
[0.18969713151454926, 0.949999988079071]
```

In [64]:
```
results_test
```

Out[64]:
```
[0.6841866970062256, 0.6388888955116272]
```

In [65]:
```
# Building a CNN
```

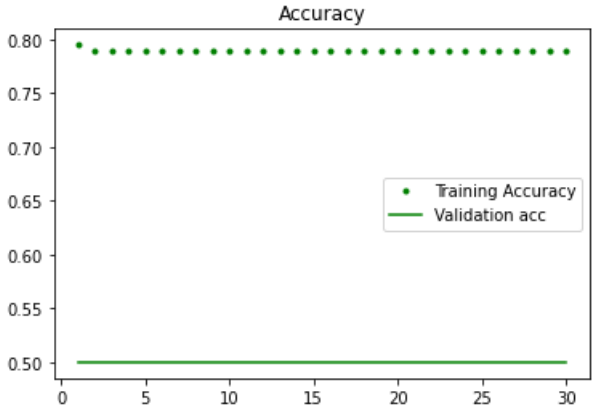
In [66]:
```
model = models.Sequential()
model.add(layers.Conv2D(32, (3, 3), activation='relu',
                        input_shape=(64 ,64,  3)))
model.add(layers.MaxPooling2D((2, 2)))

model.add(layers.Conv2D(32, (4, 4), activation='relu'))
model.add(layers.MaxPooling2D((2, 2)))

model.add(layers.Conv2D(64, (3, 3), activation='relu'))
model.add(layers.MaxPooling2D((2, 2)))
```

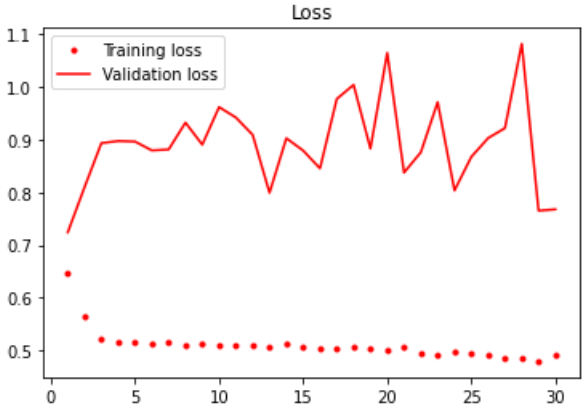
```
model.add(layers.Flatten())
model.add(layers.Dense(64, activation='relu'))
model.add(layers.Dense(1, activation='sigmoid'))

model.compile(loss='binary_crossentropy',
              optimizer="sgd",
              metrics=['acc'])

history = model.fit(train_images,
                    train_y,
                    epochs=30,
                    batch_size=32,
                    validation_data=(val_images, val_y))
```

```
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6457 - acc: 0.7950 - val_loss: 0.7240 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5637 - acc: 0.7900 - val_loss: 0.8100 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5228 - acc: 0.7900 - val_loss: 0.8936 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5163 - acc: 0.7900 - val_loss: 0.8975 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5160 - acc: 0.7900 - val_loss: 0.8965 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5137 - acc: 0.7900 - val_loss: 0.8797 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.8815 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5101 - acc: 0.7900 - val_loss: 0.9325 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5123 - acc: 0.7900 - val_loss: 0.8906 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5084 - acc: 0.7900 - val_loss: 0.9620 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5096 - acc: 0.7900 - val_loss: 0.9422 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.9092 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5052 - acc: 0.7900 - val_loss: 0.7992 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5125 - acc: 0.7900 - val_loss: 0.9029 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5050 - acc: 0.7900 - val_loss: 0.8794 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5018 - acc: 0.7900 - val_loss: 0.8455 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5021 - acc: 0.7900 - val_loss: 0.9775 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5051 - acc: 0.7900 - val_loss: 1.0044 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5030 - acc: 0.7900 - val_loss: 0.8833 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4988 - acc: 0.7900 - val_loss: 1.0650 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5052 - acc: 0.7900 - val_loss: 0.8375 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4949 - acc: 0.7900 - val_loss: 0.8762 - val_acc: 0.
```

```
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4914 - acc: 0.7900 - val_loss: 0.9715 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4964 - acc: 0.7900 - val_loss: 0.8036 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4932 - acc: 0.7900 - val_loss: 0.8675 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 32ms/step - loss: 0.4924 - acc: 0.7900 - val_loss: 0.9031 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4858 - acc: 0.7900 - val_loss: 0.9221 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 31ms/step - loss: 0.4837 - acc: 0.7900 - val_loss: 1.0824 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4790 - acc: 0.7900 - val_loss: 0.7652 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4895 - acc: 0.7900 - val_loss: 0.7677 - val_acc: 0.
5000
```

In [67]:
```
train_acc = history.history['acc']
val_acc = history.history['val_acc']
train_loss = history.history['loss']
val_loss = history.history['val_loss']
epch = range(1, len(train_acc) + 1)
plt.plot(epch, train_acc, 'g.', label='Training Accuracy')
plt.plot(epch, val_acc, 'g', label='Validation acc')
plt.title('Accuracy')
plt.legend()
plt.figure()
plt.plot(epch, train_loss, 'r.', label='Training loss')
plt.plot(epch, val_loss, 'r', label='Validation loss')
plt.title('Loss')
plt.legend()
plt.show()
```





In [68]:
```
# visualize_training_results(history_B)
```

In [69]:
```
results_train = model.evaluate(train_images, train_y)
```

```
7/7 [==============================] - 0s 6ms/step - loss: 0.4916 - acc: 0.7900
```

In [70]:
```
results_test = model.evaluate(test_images, test_y)
```

```
6/6 [==============================] - 0s 6ms/step - loss: 0.6829 - acc: 0.5833
```

In [71]:
```
results_train
```

Out[71]:
```
[0.49157267808914185, 0.7900000214576721]
```

In [72]:
```
results_test
```

Out[72]:
```
[0.6828626394271851, 0.5833333134651184]
```

With an accuracy of 80% on the training images and an accuracy of 60% on the testing images, we can say this CNN is slightly overfitted.

Grid Search Tuning

In [73]:
```
pip install talos
```

```
Requirement already satisfied: talos in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (1.0)
Requirement already satisfied: numpy in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(1.18.5)
Requirement already satisfied: astetik in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(1.11.1)
Requirement already satisfied: tqdm in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos) (4.
50.2)
Requirement already satisfied: wrangle in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(0.6.9)
Requirement already satisfied: statsmodels>=0.11.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from talos) (0.12.0)
Requirement already satisfied: kerasplotlib in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from ta
los) (0.1.6)
Requirement already satisfied: requests in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(2.24.0)
Requirement already satisfied: sklearn in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(0.0)
Requirement already satisfied: chances in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(0.1.9)
Requirement already satisfied: tensorflow>=2.0.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fr
om talos) (2.3.1)
Requirement already satisfied: pandas in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from talos)
(1.1.3)
Requirement already satisfied: geonamescache in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from a
stetik->talos) (1.3.0)
Requirement already satisfied: patsy in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from astetik->
talos) (0.5.1)
Requirement already satisfied: seaborn in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from astetik
->talos) (0.11.0)
Requirement already satisfied: IPython in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from astetik
->talos) (7.18.1)
Requirement already satisfied: keras in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from wrangle->
talos) (2.4.3)
Requirement already satisfied: scipy in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from wrangle->
talos) (1.5.0)
Requirement already satisfied: chardet<4,>=3.0.2 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fr
om requests->talos) (3.0.4)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (f
rom requests->talos) (2021.10.8)
Requirement already satisfied: idna<3,>=2.5 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from re
quests->talos) (2.10)
Requirement already satisfied: urllib3!=1.25.0,!=1.25.1,<1.26,>=1.21.1 in c:\users\rychu\anaconda3\envs\learn-env
\lib\site-packages (from requests->talos) (1.25.10)
Requirement already satisfied: scikit-learn in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from sk
learn->talos) (0.23.2)
Requirement already satisfied: wrapt>=1.11.1 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from t
ensorflow>=2.0.0->talos) (1.12.1)
Requirement already satisfied: absl-py>=0.7.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from
tensorflow>=2.0.0->talos) (0.10.0)
Requirement already satisfied: termcolor>=1.1.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fro
m tensorflow>=2.0.0->talos) (1.1.0)
Requirement already satisfied: wheel>=0.26 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from ten
sorflow>=2.0.0->talos) (0.35.1)
```

```
Requirement already satisfied: six>=1.12.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from ten
sorflow>=2.0.0->talos) (1.15.0)
Requirement already satisfied: astunparse==1.6.3 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fr
om tensorflow>=2.0.0->talos) (1.6.3)
Requirement already satisfied: tensorboard<3,>=2.3.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from tensorflow>=2.0.0->talos) (2.3.0)
Requirement already satisfied: grpcio>=1.8.6 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from t
ensorflow>=2.0.0->talos) (1.31.0)
Requirement already satisfied: protobuf>=3.9.2 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from
tensorflow>=2.0.0->talos) (3.11.2)
Requirement already satisfied: google-pasta>=0.1.8 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from tensorflow>=2.0.0->talos) (0.2.0)
Requirement already satisfied: keras-preprocessing<1.2,>=1.1.1 in c:\users\rychu\anaconda3\envs\learn-env\lib\sit
e-packages (from tensorflow>=2.0.0->talos) (1.1.2)
Requirement already satisfied: tensorflow-estimator<2.4.0,>=2.3.0 in c:\users\rychu\anaconda3\envs\learn-env\lib
\site-packages (from tensorflow>=2.0.0->talos) (2.3.0)
Requirement already satisfied: gast==0.3.3 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from ten
sorflow>=2.0.0->talos) (0.3.3)
Requirement already satisfied: opt-einsum>=2.3.2 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fr
om tensorflow>=2.0.0->talos) (3.3.0)
Requirement already satisfied: h5py<2.11.0,>=2.10.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from tensorflow>=2.0.0->talos) (2.10.0)
Requirement already satisfied: python-dateutil>=2.7.3 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-package
s (from pandas->talos) (2.8.1)
Requirement already satisfied: pytz>=2017.2 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from pa
ndas->talos) (2020.1)
Requirement already satisfied: matplotlib>=2.2 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from
seaborn->astetik->talos) (3.3.1)
Requirement already satisfied: prompt-toolkit!=3.0.0,!=3.0.1,<3.1.0,>=2.0.0 in c:\users\rychu\anaconda3\envs\lear
n-env\lib\site-packages (from IPython->astetik->talos) (3.0.8)
Requirement already satisfied: decorator in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from IPyth
on->astetik->talos) (4.4.2)
Requirement already satisfied: pickleshare in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from IPy
thon->astetik->talos) (0.7.5)
Requirement already satisfied: setuptools>=18.5 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fro
m IPython->astetik->talos) (50.3.0.post20201103)
Requirement already satisfied: pygments in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from IPytho
n->astetik->talos) (2.7.1)
Requirement already satisfied: colorama; sys_platform == "win32" in c:\users\rychu\anaconda3\envs\learn-env\lib\s
ite-packages (from IPython->astetik->talos) (0.4.3)
Requirement already satisfied: jedi>=0.10 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from IPyt
hon->astetik->talos) (0.17.2)
Requirement already satisfied: traitlets>=4.2 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from
IPython->astetik->talos) (5.0.5)
Requirement already satisfied: backcall in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from IPytho
n->astetik->talos) (0.2.0)
Requirement already satisfied: pyyaml in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from keras->w
rangle->talos) (5.3.1)
Requirement already satisfied: threadpoolctl>=2.0.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from scikit-learn->sklearn->talos) (2.1.0)
Requirement already satisfied: joblib>=0.11 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from sc
ikit-learn->sklearn->talos) (0.17.0)
Requirement already satisfied: markdown>=2.6.8 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from
tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (3.3.2)
Requirement already satisfied: werkzeug>=0.11.15 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fr
om tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (1.0.1)
Requirement already satisfied: google-auth-oauthlib<0.5,>=0.4.1 in c:\users\rychu\anaconda3\envs\learn-env\lib\si
te-packages (from tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (0.4.1)
Requirement already satisfied: tensorboard-plugin-wit>=1.6.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-
packages (from tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (1.7.0)
Requirement already satisfied: google-auth<2,>=1.6.3 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (1.22.0)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in c:\users\rychu\anaconda3\envs\learn-en
v\lib\site-packages (from matplotlib>=2.2->seaborn->astetik->talos) (2.4.7)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fr
om matplotlib>=2.2->seaborn->astetik->talos) (1.2.0)
Requirement already satisfied: pillow>=6.2.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from m
atplotlib>=2.2->seaborn->astetik->talos) (8.0.0)
Requirement already satisfied: cycler>=0.10 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from ma
tplotlib>=2.2->seaborn->astetik->talos) (0.10.0)
Requirement already satisfied: wcwidth in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from prompt-
toolkit!=3.0.0,!=3.0.1,<3.1.0,>=2.0.0->IPython->astetik->talos) (0.2.5)
Requirement already satisfied: parso<0.8.0,>=0.7.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from jedi>=0.10->IPython->astetik->talos) (0.7.0)
Requirement already satisfied: ipython-genutils in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fro
m traitlets>=4.2->IPython->astetik->talos) (0.2.0)
Requirement already satisfied: requests-oauthlib>=0.7.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packa
ges (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (1.3.0)
Requirement already satisfied: rsa<5,>=3.1.4; python_version >= "3.5" in c:\users\rychu\anaconda3\envs\learn-env
\lib\site-packages (from google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (4.6)
Requirement already satisfied: pyasn1-modules>=0.2.1 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
```

```
(from google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (0.2.7)
Requirement already satisfied: cachetools<5.0,>=2.0.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-package
s (from google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (4.1.1)
Requirement already satisfied: aiohttp<4.0.0dev,>=3.6.2; python_version >= "3.6" in c:\users\rychu\anaconda3\envs
\learn-env\lib\site-packages (from google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (3.6.
3)
Requirement already satisfied: oauthlib>=3.0.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from
requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos) (3.
1.0)
Requirement already satisfied: pyasn1>=0.1.3 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from r
sa<5,>=3.1.4; python_version >= "3.5"->google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.0.0->talos)
(0.4.8)
Requirement already satisfied: yarl<1.6.0,>=1.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (fro
m aiohttp<4.0.0dev,>=3.6.2; python_version >= "3.6"->google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.
0.0->talos) (1.5.1)
Requirement already satisfied: async-timeout<4.0,>=3.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packag
es (from aiohttp<4.0.0dev,>=3.6.2; python_version >= "3.6"->google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorf
low>=2.0.0->talos) (3.0.1)
Requirement already satisfied: multidict<5.0,>=4.5 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages
(from aiohttp<4.0.0dev,>=3.6.2; python_version >= "3.6"->google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow
>=2.0.0->talos) (4.7.5)
Requirement already satisfied: attrs>=17.3.0 in c:\users\rychu\anaconda3\envs\learn-env\lib\site-packages (from a
iohttp<4.0.0dev,>=3.6.2; python_version >= "3.6"->google-auth<2,>=1.6.3->tensorboard<3,>=2.3.0->tensorflow>=2.0.0
->talos) (20.2.0)
Note: you may need to restart the kernel to use updated packages.
```

In [74]:
```
import talos
import numpy
```

In [92]:
```
Train_NORMAL_2 = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\train\\NORMAL\\*.jpeg")
Train_PNEUMONIA_2 = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\train\\PNEUMONIA\\*j
```

In [93]:
```
train_data_2 = []
train_labels_2 = []
```

In [94]:
```
for i in Train_NORMAL_2:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    train_data_2.append(image)
    train_labels_2.append(0)

for i in Train_PNEUMONIA_2:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    train_data_2.append(image)
    train_labels_2.append(1)
```

In [95]:
```
train_data_2 = np.array(train_data_2)
train_labels_2 = np.array(train_labels_2)

# X_train, X_test, y_train, y_test = train_test_split(data_2, labels_2, test_size=0.2, random_state=42)
```

In [96]:
```
Val_NORMAL_2 = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\val\\NORMAL\\*.jpeg")
Val_PNEUMONIA_2 = glob.glob("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\chest_xray\\val\\PNEUMONIA\\*jpeg"
```

In [97]:
```
val_data_2 = []
val_labels_2 = []
```

In [99]:
```
for i in Val_NORMAL_2:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    val_data_2.append(image)
    val_labels_2.append(0)

for i in Val_PNEUMONIA_2:
    image= tf.keras.preprocessing.image.load_img(i, color_mode='grayscale', target_size= (64,64))
    image=np.array(image)
    val_data_2.append(image)
    val_labels_2.append(1)
```

In [100…
```
val_data_2 = np.array(val_data_2)
val_labels_2 = np.array(val_labels_2)

# X_train, X_test, y_train, y_test = train_test_split(data_2, labels_2, test_size=0.2, random_state=42)
```

In [102…

```
def dense_network(train_data_2, train_labels_2, val_data_2, val_labels_2, params):

    model = models.Sequential()

    # hidden layers
    model.add(layers.Conv2D(32, (3, 3), activation=params['activation1'], input_shape=(64 ,64,  3)))
    model.add(layers.MaxPooling2D((2, 2)))

    model.add(layers.Conv2D(32, (4, 4), activation=params['activation2']))
    model.add(layers.MaxPooling2D((2, 2)))

    model.add(layers.Conv2D(64, (3, 3), activation=params['activation3']))
    model.add(layers.MaxPooling2D((2, 2)))

    model.add(layers.Flatten())

    model.add(layers.Dense(64, activation=params['activation4']))
    model.add(layers.Dropout(params['dropout']))

    # output layer
    model.add(layers.Dense(1, activation='sigmoid'))

    model.compile(loss='binary_crossentropy',
              optimizer=params['optimizer'],
              metrics=['acc'])

    out = model.fit(train_images,
                        train_y,
                        epochs=30,
                        batch_size=32,
                        validation_data=(val_images, val_y))
    return out, model
```

In [103…

```
params = {'dropout': [0.1, 0.3, 0.5],
          'optimizer': ['adam', 'sgd'],
          'activation1': ['relu', 'tanh'],
          'activation2': ['relu', 'tanh'],
          'activation3': ['relu', 'tanh'],
          'activation4': ['relu', 'tanh'],}
```

In [104…

```
results = talos.Scan(train_data_2, train_labels_2, params=params, model = dense_network, experiment_name='grid')
```

```
  0%|          | 0/96 [00:00<?, ?it/s]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5331 - acc: 0.7900 - val_loss: 0.8077 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5277 - acc: 0.7900 - val_loss: 1.0598 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5256 - acc: 0.7900 - val_loss: 0.7280 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 55ms/step - loss: 0.5052 - acc: 0.7900 - val_loss: 0.9007 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4515 - acc: 0.8000 - val_loss: 0.8128 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3821 - acc: 0.8150 - val_loss: 0.7021 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3100 - acc: 0.8950 - val_loss: 1.1170 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2550 - acc: 0.9150 - val_loss: 1.1859 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2608 - acc: 0.8800 - val_loss: 1.4967 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1975 - acc: 0.9200 - val_loss: 2.1811 - val_acc: 0.
5625
Epoch 11/30
7/7 [==============================] - 0s 38ms/step - loss: 0.2987 - acc: 0.8850 - val_loss: 1.0864 - val_acc: 0.
6250
```

```
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1836 - acc: 0.9200 - val_loss: 0.9335 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1554 - acc: 0.9550 - val_loss: 1.4650 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1660 - acc: 0.9450 - val_loss: 1.2905 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1389 - acc: 0.9450 - val_loss: 0.5421 - val_acc: 0.
8125
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1912 - acc: 0.9200 - val_loss: 1.4551 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1161 - acc: 0.9650 - val_loss: 1.0982 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0918 - acc: 0.9600 - val_loss: 0.9983 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0771 - acc: 0.9800 - val_loss: 0.9706 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0702 - acc: 0.9750 - val_loss: 0.8951 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0582 - acc: 0.9850 - val_loss: 1.6926 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 42ms/step - loss: 0.0428 - acc: 0.9900 - val_loss: 0.7458 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1043 - acc: 0.9450 - val_loss: 1.4860 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0400 - acc: 0.9900 - val_loss: 1.3707 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 41ms/step - loss: 0.0583 - acc: 0.9700 - val_loss: 0.8390 - val_acc: 0.
8125
Epoch 26/30
7/7 [==============================] - 0s 39ms/step - loss: 0.1054 - acc: 0.9450 - val_loss: 0.5644 - val_acc: 0.
8125
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1510 - acc: 0.9250 - val_loss: 1.4525 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0637 - acc: 0.9850 - val_loss: 0.6818 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0308 - acc: 0.9950 - val_loss: 1.3646 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 41ms/step - loss: 0.0195 - acc: 1.0000 - val_loss: 0.9350 - val_acc: 0.
7500
  1%|          | 1/96 [00:09<15:44,  9.94s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6630 - acc: 0.6350 - val_loss: 0.7198 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5627 - acc: 0.7900 - val_loss: 0.8057 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5267 - acc: 0.7900 - val_loss: 0.8987 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5146 - acc: 0.7900 - val_loss: 0.9467 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5254 - acc: 0.7900 - val_loss: 0.9115 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5149 - acc: 0.7900 - val_loss: 0.8507 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5097 - acc: 0.7900 - val_loss: 0.9477 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5132 - acc: 0.7900 - val_loss: 0.8142 - val_acc: 0.
```

```
5000
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5114 - acc: 0.7900 - val_loss: 0.8461 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5087 - acc: 0.7900 - val_loss: 0.9195 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5092 - acc: 0.7900 - val_loss: 0.8767 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 40ms/step - loss: 0.5102 - acc: 0.7900 - val_loss: 0.9083 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5062 - acc: 0.7900 - val_loss: 0.9714 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 39ms/step - loss: 0.5039 - acc: 0.7900 - val_loss: 0.9352 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4986 - acc: 0.7900 - val_loss: 0.9059 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.9925 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5030 - acc: 0.7900 - val_loss: 0.9682 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5061 - acc: 0.7900 - val_loss: 0.8942 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 0.9031 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5053 - acc: 0.7900 - val_loss: 0.9819 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5009 - acc: 0.7900 - val_loss: 0.8481 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4947 - acc: 0.7900 - val_loss: 0.8873 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4954 - acc: 0.7900 - val_loss: 0.8507 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4876 - acc: 0.7900 - val_loss: 0.8251 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4892 - acc: 0.7900 - val_loss: 0.9492 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4798 - acc: 0.7900 - val_loss: 0.7934 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4853 - acc: 0.7900 - val_loss: 0.9184 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4712 - acc: 0.7900 - val_loss: 0.9334 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4834 - acc: 0.7900 - val_loss: 1.0285 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4789 - acc: 0.7900 - val_loss: 0.7745 - val_acc: 0.
5000

  2%|▌          | 2/96 [00:19<15:29,  9.89s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.5971 - acc: 0.7050 - val_loss: 0.9972 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5841 - acc: 0.7900 - val_loss: 0.7351 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5352 - acc: 0.7900 - val_loss: 1.0454 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5349 - acc: 0.7900 - val_loss: 0.8036 - val_acc: 0.
5000
```

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Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5215 - acc: 0.7900 - val_loss: 0.8441 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5069 - acc: 0.7900 - val_loss: 0.8441 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4873 - acc: 0.7900 - val_loss: 1.1617 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4853 - acc: 0.7900 - val_loss: 1.1387 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4583 - acc: 0.8000 - val_loss: 1.1051 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3943 - acc: 0.8100 - val_loss: 0.6196 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4777 - acc: 0.7400 - val_loss: 0.8179 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3716 - acc: 0.8600 - val_loss: 1.0850 - val_acc: 0.
5625
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3290 - acc: 0.8700 - val_loss: 0.9174 - val_acc: 0.
5625
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3185 - acc: 0.8750 - val_loss: 0.6935 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2368 - acc: 0.8950 - val_loss: 1.1638 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2162 - acc: 0.9150 - val_loss: 1.4733 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2955 - acc: 0.9000 - val_loss: 0.5324 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2536 - acc: 0.9150 - val_loss: 1.8423 - val_acc: 0.
5625
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2276 - acc: 0.9000 - val_loss: 0.6548 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2458 - acc: 0.9050 - val_loss: 1.5377 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2273 - acc: 0.9050 - val_loss: 0.6531 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2166 - acc: 0.9200 - val_loss: 1.2211 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1486 - acc: 0.9450 - val_loss: 1.6397 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1541 - acc: 0.9400 - val_loss: 0.5845 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2447 - acc: 0.8800 - val_loss: 1.9516 - val_acc: 0.
5625
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1662 - acc: 0.9150 - val_loss: 1.1447 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1524 - acc: 0.9600 - val_loss: 1.6198 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1183 - acc: 0.9600 - val_loss: 1.1743 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0925 - acc: 0.9650 - val_loss: 2.5660 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1033 - acc: 0.9550 - val_loss: 1.1973 - val_acc: 0.
6875
  3%|▌          | 3/96 [00:28<15:02,  9.71s/it]
Epoch 1/30
```

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7/7 [==============================] - 0s 47ms/step - loss: 0.6485 - acc: 0.7150 - val_loss: 0.7221 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5593 - acc: 0.7900 - val_loss: 0.7811 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5359 - acc: 0.7900 - val_loss: 0.8482 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5335 - acc: 0.7900 - val_loss: 0.8255 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5264 - acc: 0.7900 - val_loss: 0.8170 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5244 - acc: 0.7900 - val_loss: 0.8925 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5199 - acc: 0.7900 - val_loss: 0.9338 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5341 - acc: 0.7900 - val_loss: 0.9222 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5192 - acc: 0.7900 - val_loss: 0.8799 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5297 - acc: 0.7900 - val_loss: 0.9800 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5167 - acc: 0.7900 - val_loss: 0.9566 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.8992 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5086 - acc: 0.7900 - val_loss: 0.9649 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5026 - acc: 0.7900 - val_loss: 1.0436 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5297 - acc: 0.7900 - val_loss: 0.8652 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5163 - acc: 0.7900 - val_loss: 0.8765 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5078 - acc: 0.7900 - val_loss: 0.9224 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5121 - acc: 0.7900 - val_loss: 0.7604 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5240 - acc: 0.7900 - val_loss: 0.9062 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5119 - acc: 0.7900 - val_loss: 0.8255 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5153 - acc: 0.7900 - val_loss: 0.7513 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5155 - acc: 0.7900 - val_loss: 0.8924 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4997 - acc: 0.7900 - val_loss: 0.8880 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4847 - acc: 0.7900 - val_loss: 0.8376 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5151 - acc: 0.7900 - val_loss: 0.8449 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5112 - acc: 0.7900 - val_loss: 0.8637 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4957 - acc: 0.7900 - val_loss: 0.7649 - val_acc: 0.
5000
Epoch 28/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.5037 - acc: 0.7900 - val_loss: 0.8002 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4921 - acc: 0.7900 - val_loss: 1.0135 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4984 - acc: 0.7900 - val_loss: 0.8283 - val_acc: 0.
5000
  4%|▌          | 4/96 [00:38<14:40,  9.58s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5716 - acc: 0.7400 - val_loss: 1.0107 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5622 - acc: 0.7900 - val_loss: 0.7517 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5467 - acc: 0.7900 - val_loss: 0.9817 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5315 - acc: 0.7900 - val_loss: 0.8739 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5276 - acc: 0.7900 - val_loss: 0.9143 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5094 - acc: 0.7900 - val_loss: 0.7717 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4877 - acc: 0.7900 - val_loss: 0.9982 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4680 - acc: 0.8000 - val_loss: 1.0161 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4289 - acc: 0.8000 - val_loss: 0.9774 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3619 - acc: 0.8050 - val_loss: 0.9796 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3331 - acc: 0.8300 - val_loss: 0.6456 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3130 - acc: 0.8900 - val_loss: 0.7717 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2871 - acc: 0.8700 - val_loss: 0.5985 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3502 - acc: 0.8500 - val_loss: 0.6670 - val_acc: 0.
6875
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2796 - acc: 0.8800 - val_loss: 1.3472 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2642 - acc: 0.8750 - val_loss: 0.6685 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2207 - acc: 0.8850 - val_loss: 1.0167 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1806 - acc: 0.9100 - val_loss: 0.8040 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1597 - acc: 0.9100 - val_loss: 1.6826 - val_acc: 0.
5625
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1781 - acc: 0.9150 - val_loss: 1.2260 - val_acc: 0.
5625
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1535 - acc: 0.9200 - val_loss: 0.8111 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1266 - acc: 0.9500 - val_loss: 1.8401 - val_acc: 0.
5625
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0864 - acc: 0.9700 - val_loss: 1.4225 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0755 - acc: 0.9800 - val_loss: 1.3354 - val_acc: 0.
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6875
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0918 - acc: 0.9650 - val_loss: 1.5925 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0680 - acc: 0.9800 - val_loss: 3.1894 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0808 - acc: 0.9600 - val_loss: 0.9719 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0824 - acc: 0.9700 - val_loss: 3.2071 - val_acc: 0.
5625
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1145 - acc: 0.9250 - val_loss: 1.4622 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0680 - acc: 0.9800 - val_loss: 1.9448 - val_acc: 0.
6250
  5%|▌         | 5/96 [00:47<14:27,  9.54s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6698 - acc: 0.6900 - val_loss: 0.7065 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5983 - acc: 0.7900 - val_loss: 0.7378 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5518 - acc: 0.7900 - val_loss: 0.8114 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5208 - acc: 0.7900 - val_loss: 0.8754 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5424 - acc: 0.7900 - val_loss: 0.8771 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5186 - acc: 0.7900 - val_loss: 0.9081 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5329 - acc: 0.7900 - val_loss: 0.9467 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5534 - acc: 0.7900 - val_loss: 0.9210 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5468 - acc: 0.7900 - val_loss: 0.9196 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5437 - acc: 0.7900 - val_loss: 0.8795 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5439 - acc: 0.7900 - val_loss: 0.8219 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5297 - acc: 0.7900 - val_loss: 0.8739 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5270 - acc: 0.7900 - val_loss: 0.9002 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5238 - acc: 0.7900 - val_loss: 0.9034 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5462 - acc: 0.7900 - val_loss: 0.8648 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5181 - acc: 0.7900 - val_loss: 0.8907 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4978 - acc: 0.7900 - val_loss: 0.8809 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5154 - acc: 0.7900 - val_loss: 0.8992 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5260 - acc: 0.7900 - val_loss: 0.8659 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5330 - acc: 0.7900 - val_loss: 0.8665 - val_acc: 0.
5000
Epoch 21/30
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7/7 [==============================] - 0s 36ms/step - loss: 0.5201 - acc: 0.7900 - val_loss: 0.8572 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5295 - acc: 0.7900 - val_loss: 0.9000 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5190 - acc: 0.7900 - val_loss: 0.8734 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5103 - acc: 0.7900 - val_loss: 0.8668 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5156 - acc: 0.7900 - val_loss: 0.9074 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5242 - acc: 0.7900 - val_loss: 0.8502 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 0.9394 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5194 - acc: 0.7900 - val_loss: 0.8412 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5065 - acc: 0.7900 - val_loss: 0.8831 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5117 - acc: 0.7900 - val_loss: 0.8954 - val_acc: 0.
5000
  6%|▉          | 6/96 [00:57<14:14,  9.49s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5654 - acc: 0.7100 - val_loss: 0.7944 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5345 - acc: 0.7900 - val_loss: 0.9098 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5109 - acc: 0.7900 - val_loss: 0.9857 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.7643 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4802 - acc: 0.7900 - val_loss: 1.0278 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4347 - acc: 0.8250 - val_loss: 1.3124 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4421 - acc: 0.8400 - val_loss: 0.7051 - val_acc: 0.
5625
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2838 - acc: 0.8800 - val_loss: 0.7890 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1907 - acc: 0.9350 - val_loss: 1.1910 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1649 - acc: 0.9200 - val_loss: 1.5655 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2114 - acc: 0.9100 - val_loss: 1.5197 - val_acc: 0.
5625
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1082 - acc: 0.9650 - val_loss: 0.8784 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1167 - acc: 0.9500 - val_loss: 0.7345 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1210 - acc: 0.9550 - val_loss: 1.0399 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1252 - acc: 0.9500 - val_loss: 1.6716 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0712 - acc: 0.9750 - val_loss: 1.1505 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0567 - acc: 0.9900 - val_loss: 1.4120 - val_acc: 0.
```

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5625
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0666 - acc: 0.9700 - val_loss: 0.4190 - val_acc: 0.
8750
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0414 - acc: 0.9900 - val_loss: 1.6269 - val_acc: 0.
5625
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0213 - acc: 1.0000 - val_loss: 0.9591 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0157 - acc: 1.0000 - val_loss: 1.8109 - val_acc: 0.
5625
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0139 - acc: 0.9950 - val_loss: 1.6363 - val_acc: 0.
5625
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0078 - acc: 1.0000 - val_loss: 1.5110 - val_acc: 0.
5625
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0070 - acc: 1.0000 - val_loss: 1.6749 - val_acc: 0.
5625
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0047 - acc: 1.0000 - val_loss: 1.6095 - val_acc: 0.
5625
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0041 - acc: 1.0000 - val_loss: 1.7459 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.7071 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0027 - acc: 1.0000 - val_loss: 1.7891 - val_acc: 0.
5625
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0023 - acc: 1.0000 - val_loss: 1.8223 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0022 - acc: 1.0000 - val_loss: 1.8986 - val_acc: 0.
5625
  7%|▉          | 7/96 [01:06<14:04,  9.49s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5963 - acc: 0.7900 - val_loss: 0.7735 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5368 - acc: 0.7900 - val_loss: 0.7794 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5289 - acc: 0.7900 - val_loss: 0.8474 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.8949 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5104 - acc: 0.7900 - val_loss: 0.8658 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5124 - acc: 0.7900 - val_loss: 0.8659 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5160 - acc: 0.7900 - val_loss: 0.8296 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5096 - acc: 0.7900 - val_loss: 0.9206 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.9351 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5076 - acc: 0.7900 - val_loss: 0.8978 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5097 - acc: 0.7900 - val_loss: 0.8829 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5057 - acc: 0.7900 - val_loss: 0.8194 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5020 - acc: 0.7900 - val_loss: 0.8054 - val_acc: 0.
5000
```

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Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5032 - acc: 0.7900 - val_loss: 0.8566 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4978 - acc: 0.7900 - val_loss: 0.7980 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5066 - acc: 0.7900 - val_loss: 0.9788 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5045 - acc: 0.7900 - val_loss: 0.9476 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4942 - acc: 0.7900 - val_loss: 0.8183 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4914 - acc: 0.7900 - val_loss: 0.8750 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4987 - acc: 0.7900 - val_loss: 0.7625 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4997 - acc: 0.7900 - val_loss: 0.8129 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4921 - acc: 0.7900 - val_loss: 0.8153 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4896 - acc: 0.7900 - val_loss: 0.9478 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4927 - acc: 0.7900 - val_loss: 0.9286 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4874 - acc: 0.7900 - val_loss: 1.0507 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4888 - acc: 0.7900 - val_loss: 0.9701 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4726 - acc: 0.7900 - val_loss: 0.7711 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4752 - acc: 0.7900 - val_loss: 0.8554 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4654 - acc: 0.7900 - val_loss: 0.7325 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4837 - acc: 0.7900 - val_loss: 0.7430 - val_acc: 0.
5000
  8%|▉          | 8/96 [01:16<13:54,  9.48s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5585 - acc: 0.7300 - val_loss: 1.1892 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5444 - acc: 0.7900 - val_loss: 0.8445 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5156 - acc: 0.7900 - val_loss: 0.8052 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4829 - acc: 0.7900 - val_loss: 0.9205 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4291 - acc: 0.7950 - val_loss: 0.8934 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3767 - acc: 0.8200 - val_loss: 0.9307 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3291 - acc: 0.8600 - val_loss: 1.0676 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2817 - acc: 0.8950 - val_loss: 1.3670 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2337 - acc: 0.9200 - val_loss: 0.9958 - val_acc: 0.
6250
Epoch 10/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.1746 - acc: 0.9350 - val_loss: 0.9423 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1391 - acc: 0.9450 - val_loss: 0.6088 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1286 - acc: 0.9450 - val_loss: 1.2864 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1068 - acc: 0.9550 - val_loss: 1.3480 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0694 - acc: 0.9850 - val_loss: 0.8832 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0514 - acc: 0.9950 - val_loss: 1.5158 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0495 - acc: 0.9850 - val_loss: 0.6291 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0784 - acc: 0.9650 - val_loss: 0.5780 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0977 - acc: 0.9600 - val_loss: 1.4114 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0289 - acc: 0.9950 - val_loss: 1.1628 - val_acc: 0.
6250
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0276 - acc: 1.0000 - val_loss: 1.2995 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0198 - acc: 1.0000 - val_loss: 1.3036 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0134 - acc: 1.0000 - val_loss: 1.2944 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0090 - acc: 1.0000 - val_loss: 1.5353 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0070 - acc: 1.0000 - val_loss: 1.2446 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0064 - acc: 1.0000 - val_loss: 1.6917 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0048 - acc: 1.0000 - val_loss: 1.7089 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0038 - acc: 1.0000 - val_loss: 1.4805 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0051 - acc: 1.0000 - val_loss: 1.6067 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.2888 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.6464 - val_acc: 0.
6250
  9%|▉         | 9/96 [01:25<13:44,  9.48s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6787 - acc: 0.6600 - val_loss: 0.6977 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.6334 - acc: 0.7900 - val_loss: 0.7141 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5785 - acc: 0.7900 - val_loss: 0.7630 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5454 - acc: 0.7900 - val_loss: 0.7979 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5314 - acc: 0.7900 - val_loss: 0.7959 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5238 - acc: 0.7900 - val_loss: 0.8648 - val_acc: 0.
```

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5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5208 - acc: 0.7900 - val_loss: 0.8931 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.8709 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5187 - acc: 0.7900 - val_loss: 0.8685 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5139 - acc: 0.7900 - val_loss: 0.8799 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5222 - acc: 0.7900 - val_loss: 0.8534 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.8779 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5123 - acc: 0.7900 - val_loss: 0.9739 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5149 - acc: 0.7900 - val_loss: 0.8981 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5137 - acc: 0.7900 - val_loss: 0.9153 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5114 - acc: 0.7900 - val_loss: 0.9584 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5119 - acc: 0.7900 - val_loss: 0.9280 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5122 - acc: 0.7900 - val_loss: 0.8561 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5077 - acc: 0.7900 - val_loss: 0.9191 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5102 - acc: 0.7900 - val_loss: 0.9194 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5117 - acc: 0.7900 - val_loss: 0.9304 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5144 - acc: 0.7900 - val_loss: 0.8577 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5083 - acc: 0.7900 - val_loss: 0.8665 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5132 - acc: 0.7900 - val_loss: 0.8725 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5056 - acc: 0.7900 - val_loss: 0.9186 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5110 - acc: 0.7900 - val_loss: 0.9711 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4944 - acc: 0.7900 - val_loss: 0.9853 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5044 - acc: 0.7900 - val_loss: 0.9413 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5012 - acc: 0.7900 - val_loss: 0.9675 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5030 - acc: 0.7900 - val_loss: 0.8757 - val_acc: 0.
5000
 10%|▉         | 10/96 [01:34<13:33,  9.46s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5743 - acc: 0.7550 - val_loss: 0.8085 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5337 - acc: 0.7900 - val_loss: 0.8281 - val_acc: 0.
5000
Epoch 3/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.5699 - acc: 0.7900 - val_loss: 0.8670 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5470 - acc: 0.7900 - val_loss: 0.8574 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4923 - acc: 0.7900 - val_loss: 0.8441 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4617 - acc: 0.7900 - val_loss: 0.8087 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3742 - acc: 0.8350 - val_loss: 0.5768 - val_acc: 0.
7500
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3677 - acc: 0.8550 - val_loss: 0.5368 - val_acc: 0.
7500
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3086 - acc: 0.8800 - val_loss: 1.2891 - val_acc: 0.
5625
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2935 - acc: 0.8750 - val_loss: 1.0748 - val_acc: 0.
5625
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2802 - acc: 0.8850 - val_loss: 0.8742 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2028 - acc: 0.9300 - val_loss: 0.8244 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1758 - acc: 0.9350 - val_loss: 0.6839 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1305 - acc: 0.9750 - val_loss: 1.2409 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1017 - acc: 0.9700 - val_loss: 0.9012 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0867 - acc: 0.9800 - val_loss: 1.3142 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0771 - acc: 0.9700 - val_loss: 1.2833 - val_acc: 0.
5625
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0891 - acc: 0.9600 - val_loss: 0.7293 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1009 - acc: 0.9450 - val_loss: 0.9220 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1045 - acc: 0.9600 - val_loss: 0.8583 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0527 - acc: 0.9950 - val_loss: 0.8959 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0415 - acc: 0.9900 - val_loss: 0.9307 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0356 - acc: 0.9900 - val_loss: 0.9712 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0239 - acc: 1.0000 - val_loss: 1.6572 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0202 - acc: 1.0000 - val_loss: 1.1091 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0127 - acc: 1.0000 - val_loss: 1.5154 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0100 - acc: 1.0000 - val_loss: 1.4656 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0070 - acc: 1.0000 - val_loss: 1.4080 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0066 - acc: 1.0000 - val_loss: 1.6570 - val_acc: 0.
6250
Epoch 30/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.0045 - acc: 1.0000 - val_loss: 1.5423 - val_acc: 0.
6250
 11%|▉          | 11/96 [01:44<13:27,  9.50s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6166 - acc: 0.7350 - val_loss: 0.8060 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5400 - acc: 0.7900 - val_loss: 0.8842 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5287 - acc: 0.7900 - val_loss: 0.8385 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5159 - acc: 0.7900 - val_loss: 0.7891 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5200 - acc: 0.7900 - val_loss: 0.8930 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5223 - acc: 0.7900 - val_loss: 0.9468 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5192 - acc: 0.7900 - val_loss: 0.8288 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5253 - acc: 0.7900 - val_loss: 0.8913 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5148 - acc: 0.7900 - val_loss: 0.8888 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5132 - acc: 0.7900 - val_loss: 0.8680 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5173 - acc: 0.7900 - val_loss: 0.9958 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5102 - acc: 0.7900 - val_loss: 0.9700 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5173 - acc: 0.7900 - val_loss: 0.9293 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5111 - acc: 0.7900 - val_loss: 0.7966 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5076 - acc: 0.7900 - val_loss: 0.7939 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5074 - acc: 0.7900 - val_loss: 0.9174 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5134 - acc: 0.7900 - val_loss: 0.8505 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5135 - acc: 0.7900 - val_loss: 0.9384 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4956 - acc: 0.7900 - val_loss: 1.0219 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5101 - acc: 0.7900 - val_loss: 0.7842 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4983 - acc: 0.7900 - val_loss: 0.7263 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5025 - acc: 0.7900 - val_loss: 0.9143 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4823 - acc: 0.7900 - val_loss: 0.9935 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4875 - acc: 0.7900 - val_loss: 0.7055 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4975 - acc: 0.7900 - val_loss: 1.0145 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4894 - acc: 0.7900 - val_loss: 0.7508 - val_acc: 0.
```

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5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4897 - acc: 0.7900 - val_loss: 0.7090 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4875 - acc: 0.7900 - val_loss: 0.9025 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4795 - acc: 0.7900 - val_loss: 0.8391 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4526 - acc: 0.7900 - val_loss: 1.0702 - val_acc: 0.
5000
 12%|▉          | 12/96 [01:53<13:15,  9.47s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5552 - acc: 0.7900 - val_loss: 0.8600 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5592 - acc: 0.7900 - val_loss: 0.7662 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5184 - acc: 0.7900 - val_loss: 0.9858 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5223 - acc: 0.7900 - val_loss: 0.7662 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4793 - acc: 0.7900 - val_loss: 1.0011 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4616 - acc: 0.7900 - val_loss: 0.7225 - val_acc: 0.
5625
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4205 - acc: 0.8000 - val_loss: 0.9656 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3826 - acc: 0.8350 - val_loss: 0.9033 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2904 - acc: 0.8700 - val_loss: 0.8584 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2597 - acc: 0.8850 - val_loss: 0.5122 - val_acc: 0.
6875
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3141 - acc: 0.8550 - val_loss: 0.7815 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2548 - acc: 0.8800 - val_loss: 1.2387 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2271 - acc: 0.9250 - val_loss: 1.0331 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1437 - acc: 0.9200 - val_loss: 0.6339 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1460 - acc: 0.9350 - val_loss: 1.1685 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0993 - acc: 0.9600 - val_loss: 0.8647 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0817 - acc: 0.9800 - val_loss: 1.1207 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0627 - acc: 0.9900 - val_loss: 0.7809 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0423 - acc: 1.0000 - val_loss: 1.0797 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0427 - acc: 0.9950 - val_loss: 1.2540 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0443 - acc: 0.9850 - val_loss: 0.5746 - val_acc: 0.
8125
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0350 - acc: 0.9950 - val_loss: 1.3538 - val_acc: 0.
6875
```

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Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0289 - acc: 0.9950 - val_loss: 0.8193 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0219 - acc: 1.0000 - val_loss: 1.1411 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0222 - acc: 1.0000 - val_loss: 0.8631 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0196 - acc: 1.0000 - val_loss: 1.4195 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0090 - acc: 1.0000 - val_loss: 0.8930 - val_acc: 0.
8125
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0172 - acc: 0.9950 - val_loss: 1.3309 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0077 - acc: 1.0000 - val_loss: 0.8763 - val_acc: 0.
8125
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0101 - acc: 1.0000 - val_loss: 1.2423 - val_acc: 0.
7500
 14%|██          | 13/96 [02:03<13:07,  9.49s/it]
Epoch 1/30
7/7 [==============================] - 0s 52ms/step - loss: 0.6583 - acc: 0.6950 - val_loss: 0.7131 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5746 - acc: 0.7900 - val_loss: 0.7630 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5343 - acc: 0.7900 - val_loss: 0.8336 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5227 - acc: 0.7900 - val_loss: 0.8160 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.8942 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5197 - acc: 0.7900 - val_loss: 0.8616 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5132 - acc: 0.7900 - val_loss: 0.9076 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5129 - acc: 0.7900 - val_loss: 0.9293 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5021 - acc: 0.7900 - val_loss: 0.9136 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5039 - acc: 0.7900 - val_loss: 0.7698 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4954 - acc: 0.7900 - val_loss: 1.0149 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5036 - acc: 0.7900 - val_loss: 1.0347 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4979 - acc: 0.7900 - val_loss: 0.8739 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4963 - acc: 0.7900 - val_loss: 0.7700 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5024 - acc: 0.7900 - val_loss: 0.9453 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4930 - acc: 0.7900 - val_loss: 0.8275 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4824 - acc: 0.7900 - val_loss: 0.9412 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4911 - acc: 0.7900 - val_loss: 0.9182 - val_acc: 0.
5000
Epoch 19/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.4909 - acc: 0.7900 - val_loss: 0.9682 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4776 - acc: 0.7900 - val_loss: 0.8495 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4802 - acc: 0.7900 - val_loss: 0.9575 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4811 - acc: 0.7900 - val_loss: 0.9825 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4854 - acc: 0.7900 - val_loss: 0.8406 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4705 - acc: 0.7900 - val_loss: 0.8252 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4629 - acc: 0.7900 - val_loss: 0.8553 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4614 - acc: 0.7900 - val_loss: 0.9229 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4561 - acc: 0.7900 - val_loss: 0.7728 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4649 - acc: 0.7900 - val_loss: 0.8323 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4786 - acc: 0.7900 - val_loss: 0.8287 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4520 - acc: 0.7900 - val_loss: 0.7458 - val_acc: 0.
5000
 15%|██          | 14/96 [02:13<13:03,  9.56s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6189 - acc: 0.6900 - val_loss: 0.7513 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5291 - acc: 0.7900 - val_loss: 1.0206 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5245 - acc: 0.7900 - val_loss: 0.8806 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5179 - acc: 0.7900 - val_loss: 0.8159 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4897 - acc: 0.7900 - val_loss: 0.9276 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5122 - acc: 0.7900 - val_loss: 1.0040 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4806 - acc: 0.7900 - val_loss: 0.7386 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4451 - acc: 0.7900 - val_loss: 0.8509 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3951 - acc: 0.7900 - val_loss: 1.1229 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3515 - acc: 0.7950 - val_loss: 0.8274 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3349 - acc: 0.8550 - val_loss: 1.1175 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2936 - acc: 0.8500 - val_loss: 0.8015 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2431 - acc: 0.8850 - val_loss: 0.5868 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2458 - acc: 0.9000 - val_loss: 1.1296 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1808 - acc: 0.9300 - val_loss: 1.1033 - val_acc: 0.
```

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6250
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1449 - acc: 0.9400 - val_loss: 0.5796 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2245 - acc: 0.8950 - val_loss: 1.9436 - val_acc: 0.
5625
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1421 - acc: 0.9500 - val_loss: 1.0099 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0968 - acc: 0.9750 - val_loss: 1.2572 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0767 - acc: 0.9850 - val_loss: 1.2012 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0555 - acc: 0.9850 - val_loss: 2.1978 - val_acc: 0.
5625
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1592 - acc: 0.9250 - val_loss: 1.0886 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1292 - acc: 0.9350 - val_loss: 0.8909 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0764 - acc: 0.9900 - val_loss: 1.1238 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0614 - acc: 0.9750 - val_loss: 0.9589 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0441 - acc: 0.9800 - val_loss: 1.5882 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0384 - acc: 0.9950 - val_loss: 1.3538 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0316 - acc: 1.0000 - val_loss: 1.3087 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0398 - acc: 0.9750 - val_loss: 2.3119 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0332 - acc: 1.0000 - val_loss: 1.3249 - val_acc: 0.
7500
 16%|█▋        | 15/96 [02:22<12:56,  9.58s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5998 - acc: 0.7650 - val_loss: 0.7987 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5226 - acc: 0.7900 - val_loss: 0.8959 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5254 - acc: 0.7900 - val_loss: 0.8857 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5132 - acc: 0.7900 - val_loss: 0.9250 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4985 - acc: 0.7900 - val_loss: 0.9079 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5027 - acc: 0.7900 - val_loss: 0.8613 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4999 - acc: 0.7900 - val_loss: 0.8605 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5007 - acc: 0.7900 - val_loss: 0.9385 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5078 - acc: 0.7900 - val_loss: 0.9496 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4926 - acc: 0.7900 - val_loss: 0.8764 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5000 - acc: 0.7900 - val_loss: 0.8285 - val_acc: 0.
5000
Epoch 12/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 0.8828 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4858 - acc: 0.7900 - val_loss: 0.8874 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4741 - acc: 0.7900 - val_loss: 0.9521 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4945 - acc: 0.7900 - val_loss: 0.9168 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4958 - acc: 0.7900 - val_loss: 0.7862 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4825 - acc: 0.7900 - val_loss: 0.9394 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4826 - acc: 0.7900 - val_loss: 0.9213 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4696 - acc: 0.7900 - val_loss: 0.7810 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4666 - acc: 0.7900 - val_loss: 0.7168 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4665 - acc: 0.8000 - val_loss: 0.8572 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4759 - acc: 0.7900 - val_loss: 0.8703 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4630 - acc: 0.7900 - val_loss: 0.9251 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4540 - acc: 0.7900 - val_loss: 0.9451 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4389 - acc: 0.7900 - val_loss: 0.7308 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4518 - acc: 0.7950 - val_loss: 1.0969 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4409 - acc: 0.7900 - val_loss: 0.7983 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4510 - acc: 0.7950 - val_loss: 0.9390 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4200 - acc: 0.7900 - val_loss: 0.7699 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4213 - acc: 0.7900 - val_loss: 0.8656 - val_acc: 0.
5000

 17%|██         | 16/96 [02:32<12:47,  9.59s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.6375 - acc: 0.7050 - val_loss: 0.7668 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5502 - acc: 0.7900 - val_loss: 0.9108 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5041 - acc: 0.7900 - val_loss: 0.8610 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4914 - acc: 0.7900 - val_loss: 0.7889 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5105 - acc: 0.7900 - val_loss: 1.1207 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.7927 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4858 - acc: 0.7900 - val_loss: 0.7861 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4227 - acc: 0.7950 - val_loss: 0.7382 - val_acc: 0.
```

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6250
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4071 - acc: 0.8000 - val_loss: 0.9859 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3579 - acc: 0.8300 - val_loss: 0.8567 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3054 - acc: 0.8450 - val_loss: 1.0637 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2939 - acc: 0.8750 - val_loss: 0.6550 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2668 - acc: 0.8600 - val_loss: 0.8274 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2042 - acc: 0.9450 - val_loss: 1.0315 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1647 - acc: 0.9450 - val_loss: 1.8201 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1801 - acc: 0.9200 - val_loss: 1.7186 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1616 - acc: 0.9350 - val_loss: 2.0015 - val_acc: 0.
5625
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1967 - acc: 0.9150 - val_loss: 1.1644 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1010 - acc: 0.9700 - val_loss: 1.0968 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1267 - acc: 0.9600 - val_loss: 1.6801 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0959 - acc: 0.9550 - val_loss: 1.3621 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0838 - acc: 0.9700 - val_loss: 1.4125 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0544 - acc: 0.9800 - val_loss: 1.4856 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0550 - acc: 0.9800 - val_loss: 1.2582 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0693 - acc: 0.9850 - val_loss: 2.0606 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0538 - acc: 0.9800 - val_loss: 1.0282 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0586 - acc: 0.9750 - val_loss: 2.1238 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0609 - acc: 0.9650 - val_loss: 1.0647 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0511 - acc: 0.9850 - val_loss: 2.2481 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0369 - acc: 0.9900 - val_loss: 1.9299 - val_acc: 0.
6250
 18%|██         | 17/96 [02:42<12:40,  9.63s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6130 - acc: 0.7100 - val_loss: 0.7894 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5351 - acc: 0.7900 - val_loss: 0.8386 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5480 - acc: 0.7900 - val_loss: 0.9255 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5299 - acc: 0.7900 - val_loss: 0.9108 - val_acc: 0.
5000
```

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Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5208 - acc: 0.7900 - val_loss: 0.9126 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5306 - acc: 0.7900 - val_loss: 0.9477 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5438 - acc: 0.7900 - val_loss: 0.8675 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5053 - acc: 0.7900 - val_loss: 0.9302 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5414 - acc: 0.7900 - val_loss: 0.8936 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5164 - acc: 0.7900 - val_loss: 0.9148 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5280 - acc: 0.7900 - val_loss: 0.8974 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5146 - acc: 0.7900 - val_loss: 0.8704 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5200 - acc: 0.7900 - val_loss: 0.9288 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5153 - acc: 0.7900 - val_loss: 0.8913 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5272 - acc: 0.7900 - val_loss: 0.9340 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5237 - acc: 0.7900 - val_loss: 0.9119 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5125 - acc: 0.7900 - val_loss: 0.9973 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5208 - acc: 0.7900 - val_loss: 0.9179 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4993 - acc: 0.7900 - val_loss: 0.8594 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5094 - acc: 0.7900 - val_loss: 0.8306 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5067 - acc: 0.7900 - val_loss: 0.8058 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4987 - acc: 0.7900 - val_loss: 0.8167 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4889 - acc: 0.7900 - val_loss: 0.9644 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4895 - acc: 0.7900 - val_loss: 0.8898 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4953 - acc: 0.7900 - val_loss: 0.9875 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4800 - acc: 0.7900 - val_loss: 0.9559 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4754 - acc: 0.7900 - val_loss: 0.9877 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4912 - acc: 0.7950 - val_loss: 0.7991 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4532 - acc: 0.7900 - val_loss: 1.0579 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4865 - acc: 0.7900 - val_loss: 0.7909 - val_acc: 0.
5000
 19%|██         | 18/96 [02:51<12:28,  9.59s/it]
Epoch 1/30
```

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7/7 [==============================] - 0s 46ms/step - loss: 0.6091 - acc: 0.7850 - val_loss: 0.9245 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5123 - acc: 0.7900 - val_loss: 0.8279 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4807 - acc: 0.7900 - val_loss: 0.8811 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4658 - acc: 0.7900 - val_loss: 0.7167 - val_acc: 0.
6250
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4159 - acc: 0.8500 - val_loss: 0.9754 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 33ms/step - loss: 0.3293 - acc: 0.8900 - val_loss: 1.1800 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2439 - acc: 0.9150 - val_loss: 1.0233 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1874 - acc: 0.9300 - val_loss: 1.1234 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1594 - acc: 0.9350 - val_loss: 0.9577 - val_acc: 0.
6875
Epoch 10/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1260 - acc: 0.9500 - val_loss: 0.8803 - val_acc: 0.
8125
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1053 - acc: 0.9650 - val_loss: 1.1414 - val_acc: 0.
6875
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0573 - acc: 0.9900 - val_loss: 1.3840 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0519 - acc: 0.9850 - val_loss: 1.2614 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0275 - acc: 1.0000 - val_loss: 1.1150 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 32ms/step - loss: 0.0191 - acc: 1.0000 - val_loss: 1.2401 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0135 - acc: 1.0000 - val_loss: 1.4028 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0117 - acc: 1.0000 - val_loss: 1.7934 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0216 - acc: 1.0000 - val_loss: 0.9595 - val_acc: 0.
8125
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0142 - acc: 1.0000 - val_loss: 1.7724 - val_acc: 0.
6250
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0060 - acc: 1.0000 - val_loss: 1.2597 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0063 - acc: 1.0000 - val_loss: 1.7553 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0040 - acc: 1.0000 - val_loss: 1.4259 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0030 - acc: 1.0000 - val_loss: 1.4761 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0021 - acc: 1.0000 - val_loss: 1.7945 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0017 - acc: 1.0000 - val_loss: 1.4769 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0018 - acc: 1.0000 - val_loss: 1.7468 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0013 - acc: 1.0000 - val_loss: 1.5952 - val_acc: 0.
7500
Epoch 28/30
```

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7/7 [==============================] - 0s 33ms/step - loss: 0.0013 - acc: 1.0000 - val_loss: 1.6494 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0011 - acc: 1.0000 - val_loss: 1.8236 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0010 - acc: 1.0000 - val_loss: 1.6125 - val_acc: 0.
7500
 20%|██        | 19/96 [03:00<12:03,  9.40s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.6008 - acc: 0.7100 - val_loss: 0.8391 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5267 - acc: 0.7900 - val_loss: 0.8634 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5128 - acc: 0.7900 - val_loss: 0.9279 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5096 - acc: 0.7900 - val_loss: 0.9103 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5069 - acc: 0.7900 - val_loss: 0.9461 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5078 - acc: 0.7900 - val_loss: 0.9609 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5046 - acc: 0.7900 - val_loss: 0.9843 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5006 - acc: 0.7900 - val_loss: 0.8753 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 0.9463 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4987 - acc: 0.7900 - val_loss: 0.8791 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4932 - acc: 0.7900 - val_loss: 0.8990 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4857 - acc: 0.7900 - val_loss: 0.7837 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4910 - acc: 0.7900 - val_loss: 0.9203 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4858 - acc: 0.7900 - val_loss: 0.8659 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4790 - acc: 0.7900 - val_loss: 0.8182 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4679 - acc: 0.7900 - val_loss: 1.1698 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4918 - acc: 0.7900 - val_loss: 0.7600 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4747 - acc: 0.7900 - val_loss: 0.8220 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4642 - acc: 0.7900 - val_loss: 0.9517 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4603 - acc: 0.7900 - val_loss: 0.9141 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4532 - acc: 0.7900 - val_loss: 0.8069 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4570 - acc: 0.7900 - val_loss: 0.9458 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4617 - acc: 0.7900 - val_loss: 0.9401 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4703 - acc: 0.7950 - val_loss: 0.8421 - val_acc: 0.
```

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5000
Epoch 25/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4370 - acc: 0.7900 - val_loss: 0.8262 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4224 - acc: 0.7900 - val_loss: 1.0950 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4602 - acc: 0.7900 - val_loss: 0.7888 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4120 - acc: 0.7900 - val_loss: 0.7964 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4180 - acc: 0.7900 - val_loss: 1.1534 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4154 - acc: 0.7900 - val_loss: 1.1864 - val_acc: 0.
5000
 21%|██        | 20/96 [03:09<11:42,  9.24s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6161 - acc: 0.6900 - val_loss: 1.3545 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5430 - acc: 0.7900 - val_loss: 0.7025 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5245 - acc: 0.7900 - val_loss: 1.0888 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4831 - acc: 0.7900 - val_loss: 0.7770 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4481 - acc: 0.7900 - val_loss: 0.9184 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3850 - acc: 0.8150 - val_loss: 0.9566 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3128 - acc: 0.8700 - val_loss: 1.0936 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2636 - acc: 0.8700 - val_loss: 1.4419 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2490 - acc: 0.8900 - val_loss: 1.4193 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2514 - acc: 0.9150 - val_loss: 0.8682 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1617 - acc: 0.9450 - val_loss: 1.0953 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1330 - acc: 0.9500 - val_loss: 0.8699 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0978 - acc: 0.9650 - val_loss: 0.9104 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0806 - acc: 0.9750 - val_loss: 0.5195 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0927 - acc: 0.9650 - val_loss: 1.1171 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0725 - acc: 0.9800 - val_loss: 1.3808 - val_acc: 0.
5625
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0803 - acc: 0.9600 - val_loss: 0.4947 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0593 - acc: 0.9850 - val_loss: 1.4575 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0293 - acc: 1.0000 - val_loss: 0.8482 - val_acc: 0.
8125
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0271 - acc: 1.0000 - val_loss: 1.0606 - val_acc: 0.
7500
Epoch 21/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.0179 - acc: 1.0000 - val_loss: 1.6151 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0156 - acc: 1.0000 - val_loss: 0.9903 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0089 - acc: 1.0000 - val_loss: 1.4796 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0089 - acc: 1.0000 - val_loss: 1.3248 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0064 - acc: 1.0000 - val_loss: 1.2867 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0052 - acc: 1.0000 - val_loss: 1.6543 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0037 - acc: 1.0000 - val_loss: 1.1978 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0048 - acc: 1.0000 - val_loss: 1.3081 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0029 - acc: 1.0000 - val_loss: 1.5371 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0027 - acc: 1.0000 - val_loss: 1.4403 - val_acc: 0.
7500
 22%|██▏         | 21/96 [03:19<11:41,  9.36s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5489 - acc: 0.7900 - val_loss: 0.8511 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5051 - acc: 0.7900 - val_loss: 0.8758 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5253 - acc: 0.7900 - val_loss: 0.9127 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5216 - acc: 0.7900 - val_loss: 0.9686 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.9016 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5164 - acc: 0.7900 - val_loss: 0.7868 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5193 - acc: 0.7900 - val_loss: 1.0501 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5032 - acc: 0.7900 - val_loss: 0.7285 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5103 - acc: 0.7850 - val_loss: 0.8915 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5185 - acc: 0.7900 - val_loss: 1.0304 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5015 - acc: 0.7900 - val_loss: 0.9230 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5054 - acc: 0.7900 - val_loss: 1.0209 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4955 - acc: 0.7900 - val_loss: 0.9299 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5036 - acc: 0.7900 - val_loss: 0.7172 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4966 - acc: 0.7900 - val_loss: 0.9401 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4924 - acc: 0.7900 - val_loss: 0.8471 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4840 - acc: 0.7900 - val_loss: 0.9118 - val_acc: 0.
```

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5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4957 - acc: 0.7900 - val_loss: 0.9483 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4752 - acc: 0.7900 - val_loss: 0.6746 - val_acc: 0.
5625
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4974 - acc: 0.8050 - val_loss: 1.0630 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4687 - acc: 0.7900 - val_loss: 1.0065 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4813 - acc: 0.7900 - val_loss: 0.6835 - val_acc: 0.
5625
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4741 - acc: 0.7900 - val_loss: 0.9118 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4586 - acc: 0.7900 - val_loss: 0.8223 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4557 - acc: 0.7900 - val_loss: 0.7785 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4520 - acc: 0.7950 - val_loss: 0.9535 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4409 - acc: 0.7900 - val_loss: 0.9073 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4270 - acc: 0.7900 - val_loss: 0.6213 - val_acc: 0.
8125
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4777 - acc: 0.8000 - val_loss: 0.7523 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4228 - acc: 0.8050 - val_loss: 0.9927 - val_acc: 0.
5000
 23%|███         | 22/96 [03:28<11:37,  9.42s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6283 - acc: 0.7450 - val_loss: 0.9707 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5389 - acc: 0.7900 - val_loss: 0.7497 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5163 - acc: 0.7900 - val_loss: 1.0285 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4898 - acc: 0.7900 - val_loss: 0.7222 - val_acc: 0.
5625
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4756 - acc: 0.8150 - val_loss: 0.8886 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4017 - acc: 0.8250 - val_loss: 0.7319 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3621 - acc: 0.8600 - val_loss: 0.8417 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3107 - acc: 0.8450 - val_loss: 1.1606 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2976 - acc: 0.8650 - val_loss: 1.4402 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3188 - acc: 0.8550 - val_loss: 0.9910 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2286 - acc: 0.9050 - val_loss: 0.7015 - val_acc: 0.
6875
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1711 - acc: 0.9500 - val_loss: 1.3046 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1479 - acc: 0.9350 - val_loss: 0.6216 - val_acc: 0.
7500
```

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Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1229 - acc: 0.9700 - val_loss: 1.0067 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0954 - acc: 0.9750 - val_loss: 1.8554 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1389 - acc: 0.9300 - val_loss: 0.9243 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0957 - acc: 0.9550 - val_loss: 1.0210 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0729 - acc: 0.9900 - val_loss: 1.1828 - val_acc: 0.
5625
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0589 - acc: 0.9900 - val_loss: 1.0988 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0419 - acc: 0.9950 - val_loss: 1.1081 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0334 - acc: 1.0000 - val_loss: 1.3621 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0267 - acc: 0.9950 - val_loss: 1.1918 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0168 - acc: 1.0000 - val_loss: 1.6874 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0153 - acc: 1.0000 - val_loss: 1.4233 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0164 - acc: 1.0000 - val_loss: 1.4988 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0183 - acc: 0.9950 - val_loss: 1.6220 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0116 - acc: 1.0000 - val_loss: 1.5211 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0079 - acc: 1.0000 - val_loss: 1.5065 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.6335 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0060 - acc: 1.0000 - val_loss: 1.6001 - val_acc: 0.
6875
 24%|███         | 23/96 [03:38<11:30,  9.46s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.5806 - acc: 0.7850 - val_loss: 0.8739 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5205 - acc: 0.7900 - val_loss: 0.9119 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5220 - acc: 0.7900 - val_loss: 0.8527 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5220 - acc: 0.7900 - val_loss: 0.9169 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5194 - acc: 0.7900 - val_loss: 0.8165 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5241 - acc: 0.7900 - val_loss: 0.9260 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5254 - acc: 0.7900 - val_loss: 0.9674 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5098 - acc: 0.7900 - val_loss: 0.7866 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5271 - acc: 0.7900 - val_loss: 0.8841 - val_acc: 0.
5000
Epoch 10/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 0.8945 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5008 - acc: 0.7900 - val_loss: 0.9012 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5056 - acc: 0.7900 - val_loss: 0.9658 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5313 - acc: 0.7900 - val_loss: 0.9077 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5281 - acc: 0.7900 - val_loss: 0.9002 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5049 - acc: 0.7900 - val_loss: 0.8801 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.7981 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5052 - acc: 0.7900 - val_loss: 0.9737 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4917 - acc: 0.7900 - val_loss: 0.9655 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4972 - acc: 0.7900 - val_loss: 0.8842 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4844 - acc: 0.7900 - val_loss: 0.8947 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4814 - acc: 0.7900 - val_loss: 0.8697 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4874 - acc: 0.7900 - val_loss: 0.8586 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4887 - acc: 0.7900 - val_loss: 0.7863 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4890 - acc: 0.7900 - val_loss: 0.9105 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4808 - acc: 0.7900 - val_loss: 0.9833 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4922 - acc: 0.7900 - val_loss: 0.8911 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4810 - acc: 0.7900 - val_loss: 0.9843 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4705 - acc: 0.7900 - val_loss: 1.0138 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4636 - acc: 0.7900 - val_loss: 1.0382 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4633 - acc: 0.7900 - val_loss: 0.7284 - val_acc: 0.
5000
 25%|███       | 24/96 [03:47<11:16,  9.40s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5727 - acc: 0.7100 - val_loss: 0.7599 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5476 - acc: 0.7900 - val_loss: 0.9664 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5165 - acc: 0.7900 - val_loss: 0.9396 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5074 - acc: 0.7900 - val_loss: 0.8722 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4943 - acc: 0.7900 - val_loss: 0.9240 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4770 - acc: 0.7900 - val_loss: 0.7969 - val_acc: 0.
5000
```

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Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4670 - acc: 0.7900 - val_loss: 1.0133 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4070 - acc: 0.7900 - val_loss: 0.8116 - val_acc: 0.
5625
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3378 - acc: 0.8300 - val_loss: 0.9936 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3073 - acc: 0.8800 - val_loss: 1.5277 - val_acc: 0.
5625
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3014 - acc: 0.8850 - val_loss: 1.8608 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3491 - acc: 0.8400 - val_loss: 0.7532 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2880 - acc: 0.8600 - val_loss: 1.0606 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2104 - acc: 0.9350 - val_loss: 1.1950 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1707 - acc: 0.9300 - val_loss: 1.1179 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1627 - acc: 0.9200 - val_loss: 0.8397 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1630 - acc: 0.9250 - val_loss: 1.3603 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1357 - acc: 0.9600 - val_loss: 2.1743 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2064 - acc: 0.9250 - val_loss: 1.2754 - val_acc: 0.
6250
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1571 - acc: 0.9300 - val_loss: 0.9932 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1693 - acc: 0.9200 - val_loss: 1.6451 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1768 - acc: 0.9200 - val_loss: 1.7938 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0994 - acc: 0.9750 - val_loss: 1.0817 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0780 - acc: 0.9800 - val_loss: 1.9063 - val_acc: 0.
5625
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0877 - acc: 0.9550 - val_loss: 0.7350 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0518 - acc: 0.9850 - val_loss: 2.0483 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0946 - acc: 0.9650 - val_loss: 1.2158 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0473 - acc: 0.9850 - val_loss: 1.8209 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0448 - acc: 0.9850 - val_loss: 1.7132 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0363 - acc: 0.9750 - val_loss: 2.1718 - val_acc: 0.
5625
 26%|███        | 25/96 [03:57<11:10,  9.44s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6479 - acc: 0.6900 - val_loss: 0.7273 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5524 - acc: 0.7900 - val_loss: 0.7875 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5178 - acc: 0.7900 - val_loss: 0.9106 - val_acc: 0.
```

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5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5165 - acc: 0.7900 - val_loss: 0.8521 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5088 - acc: 0.7900 - val_loss: 0.9010 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5165 - acc: 0.7900 - val_loss: 0.9408 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5114 - acc: 0.7900 - val_loss: 0.8808 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5063 - acc: 0.7900 - val_loss: 0.8919 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5141 - acc: 0.7900 - val_loss: 0.8388 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5012 - acc: 0.7900 - val_loss: 0.8730 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5047 - acc: 0.7900 - val_loss: 0.8002 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5115 - acc: 0.7900 - val_loss: 0.8540 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5022 - acc: 0.7900 - val_loss: 0.8788 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5047 - acc: 0.7900 - val_loss: 0.8709 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5063 - acc: 0.7900 - val_loss: 0.8479 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4971 - acc: 0.7900 - val_loss: 0.8336 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4972 - acc: 0.7900 - val_loss: 0.8546 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4970 - acc: 0.7900 - val_loss: 0.8810 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4903 - acc: 0.7900 - val_loss: 0.9390 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4867 - acc: 0.7900 - val_loss: 0.9327 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4942 - acc: 0.7900 - val_loss: 0.9559 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4813 - acc: 0.7900 - val_loss: 0.9239 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4873 - acc: 0.7900 - val_loss: 0.9222 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4874 - acc: 0.7900 - val_loss: 0.9831 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4916 - acc: 0.7900 - val_loss: 0.9598 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4891 - acc: 0.7900 - val_loss: 0.9533 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4779 - acc: 0.7900 - val_loss: 0.9059 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4796 - acc: 0.7900 - val_loss: 0.8952 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4694 - acc: 0.7900 - val_loss: 0.9524 - val_acc: 0.
5000
Epoch 30/30
```

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7/7 [==============================] - 0s 33ms/step - loss: 0.4803 - acc: 0.7900 - val_loss: 0.8001 - val_acc: 0.
5000
 27%|██▋        | 26/96 [04:06<10:55,  9.37s/it]
Epoch 1/30
7/7 [==============================] - 0s 46ms/step - loss: 0.5794 - acc: 0.7700 - val_loss: 0.7391 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5471 - acc: 0.7900 - val_loss: 0.9089 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5762 - acc: 0.7900 - val_loss: 0.7517 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5116 - acc: 0.7900 - val_loss: 1.0739 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4840 - acc: 0.7900 - val_loss: 0.7306 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4817 - acc: 0.7900 - val_loss: 0.9758 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4424 - acc: 0.7950 - val_loss: 0.7487 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.3916 - acc: 0.7950 - val_loss: 0.7454 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3550 - acc: 0.8400 - val_loss: 0.9663 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2959 - acc: 0.8800 - val_loss: 1.2078 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2648 - acc: 0.9100 - val_loss: 1.1919 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2153 - acc: 0.9050 - val_loss: 0.8115 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2198 - acc: 0.8850 - val_loss: 2.0670 - val_acc: 0.
5625
Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.2507 - acc: 0.9000 - val_loss: 0.7020 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1951 - acc: 0.9000 - val_loss: 1.0871 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1467 - acc: 0.9400 - val_loss: 1.1848 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1362 - acc: 0.9450 - val_loss: 1.4136 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1023 - acc: 0.9500 - val_loss: 1.3256 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0885 - acc: 0.9650 - val_loss: 2.0827 - val_acc: 0.
5625
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0763 - acc: 0.9650 - val_loss: 1.8922 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0858 - acc: 0.9550 - val_loss: 1.5526 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0868 - acc: 0.9550 - val_loss: 1.6905 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0812 - acc: 0.9500 - val_loss: 1.5244 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0659 - acc: 0.9650 - val_loss: 1.8882 - val_acc: 0.
5625
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0691 - acc: 0.9600 - val_loss: 1.2017 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0565 - acc: 0.9850 - val_loss: 1.3622 - val_acc: 0.
```

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6875
Epoch 27/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0772 - acc: 0.9800 - val_loss: 2.7875 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0925 - acc: 0.9700 - val_loss: 1.2569 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0526 - acc: 0.9750 - val_loss: 2.3307 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0370 - acc: 0.9850 - val_loss: 1.6565 - val_acc: 0.
6875
 28%|██▊       | 27/96 [04:15<10:42,  9.31s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6439 - acc: 0.7650 - val_loss: 0.7190 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5732 - acc: 0.7900 - val_loss: 0.7801 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5258 - acc: 0.7900 - val_loss: 0.8630 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5089 - acc: 0.7900 - val_loss: 0.9150 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5111 - acc: 0.7900 - val_loss: 0.9064 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5267 - acc: 0.7900 - val_loss: 0.8390 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5208 - acc: 0.7900 - val_loss: 0.8615 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5222 - acc: 0.7900 - val_loss: 0.8848 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5074 - acc: 0.7900 - val_loss: 0.8796 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5162 - acc: 0.7900 - val_loss: 0.9063 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4981 - acc: 0.7900 - val_loss: 0.9219 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5224 - acc: 0.7900 - val_loss: 0.9716 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.9602 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5148 - acc: 0.7900 - val_loss: 0.8757 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4988 - acc: 0.7900 - val_loss: 0.9275 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4978 - acc: 0.7900 - val_loss: 0.9242 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5286 - acc: 0.7900 - val_loss: 0.7769 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5126 - acc: 0.7900 - val_loss: 0.8875 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5138 - acc: 0.7900 - val_loss: 0.9049 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5077 - acc: 0.7900 - val_loss: 0.8457 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4932 - acc: 0.7900 - val_loss: 0.8494 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4858 - acc: 0.7900 - val_loss: 0.9641 - val_acc: 0.
5000
```

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Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4989 - acc: 0.7900 - val_loss: 0.9145 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4921 - acc: 0.7900 - val_loss: 0.9914 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.9088 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5056 - acc: 0.7900 - val_loss: 0.9021 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4986 - acc: 0.7900 - val_loss: 0.9521 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4955 - acc: 0.7900 - val_loss: 0.8996 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5001 - acc: 0.7900 - val_loss: 0.9013 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4786 - acc: 0.7900 - val_loss: 0.9082 - val_acc: 0.
5000
 29%|███        | 28/96 [04:24<10:32,  9.30s/it]
Epoch 1/30
7/7 [==============================] - 0s 46ms/step - loss: 0.5491 - acc: 0.7750 - val_loss: 0.9964 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5218 - acc: 0.7900 - val_loss: 0.9999 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5329 - acc: 0.7900 - val_loss: 0.9937 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5104 - acc: 0.7900 - val_loss: 0.7911 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4572 - acc: 0.7900 - val_loss: 1.0821 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4142 - acc: 0.7900 - val_loss: 0.7737 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3790 - acc: 0.8050 - val_loss: 0.6815 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3336 - acc: 0.8450 - val_loss: 0.8567 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2720 - acc: 0.8900 - val_loss: 1.7812 - val_acc: 0.
5625
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3305 - acc: 0.8800 - val_loss: 1.6439 - val_acc: 0.
5625
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3351 - acc: 0.8650 - val_loss: 0.6268 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2544 - acc: 0.9100 - val_loss: 0.7395 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2026 - acc: 0.9350 - val_loss: 1.2485 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2003 - acc: 0.9050 - val_loss: 1.5947 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1414 - acc: 0.9600 - val_loss: 0.9231 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1454 - acc: 0.9400 - val_loss: 0.8673 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1240 - acc: 0.9450 - val_loss: 2.0140 - val_acc: 0.
5625
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2125 - acc: 0.9250 - val_loss: 1.1308 - val_acc: 0.
6250
Epoch 19/30
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7/7 [==============================] - 0s 35ms/step - loss: 0.2203 - acc: 0.8900 - val_loss: 0.4372 - val_acc: 0.
8125
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2140 - acc: 0.9150 - val_loss: 1.4533 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2150 - acc: 0.9150 - val_loss: 0.5792 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1560 - acc: 0.9400 - val_loss: 0.8966 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1272 - acc: 0.9450 - val_loss: 0.6909 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1116 - acc: 0.9600 - val_loss: 1.4365 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0976 - acc: 0.9650 - val_loss: 0.9676 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0723 - acc: 0.9900 - val_loss: 1.0917 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0651 - acc: 0.9800 - val_loss: 1.0764 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0766 - acc: 0.9700 - val_loss: 1.2332 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0685 - acc: 0.9700 - val_loss: 0.7868 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0852 - acc: 0.9700 - val_loss: 2.0628 - val_acc: 0.
6250
 30%|███       | 29/96 [04:33<10:21,  9.28s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6723 - acc: 0.6100 - val_loss: 0.7064 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5895 - acc: 0.7850 - val_loss: 0.7489 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5610 - acc: 0.7900 - val_loss: 0.8032 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5398 - acc: 0.7900 - val_loss: 0.8697 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5355 - acc: 0.7900 - val_loss: 0.8159 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5270 - acc: 0.7900 - val_loss: 0.8039 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5396 - acc: 0.7900 - val_loss: 0.7796 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5291 - acc: 0.7900 - val_loss: 0.8112 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5283 - acc: 0.7900 - val_loss: 0.8410 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5304 - acc: 0.7900 - val_loss: 0.9089 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5162 - acc: 0.7900 - val_loss: 0.8272 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5047 - acc: 0.7900 - val_loss: 0.7836 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5111 - acc: 0.7900 - val_loss: 0.8834 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5145 - acc: 0.7900 - val_loss: 0.8612 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5097 - acc: 0.7900 - val_loss: 0.9537 - val_acc: 0.
5000
```

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Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5109 - acc: 0.7900 - val_loss: 0.9433 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5298 - acc: 0.7900 - val_loss: 0.9001 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5026 - acc: 0.7900 - val_loss: 0.8956 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5203 - acc: 0.7900 - val_loss: 0.8705 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5160 - acc: 0.7900 - val_loss: 0.8516 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5095 - acc: 0.7900 - val_loss: 0.8705 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5031 - acc: 0.7850 - val_loss: 0.7604 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5173 - acc: 0.7900 - val_loss: 0.8996 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5120 - acc: 0.7900 - val_loss: 0.8336 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4909 - acc: 0.7900 - val_loss: 0.9356 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4915 - acc: 0.7900 - val_loss: 0.9030 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5049 - acc: 0.7900 - val_loss: 0.7937 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5028 - acc: 0.7850 - val_loss: 0.7874 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5041 - acc: 0.7900 - val_loss: 0.9606 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4810 - acc: 0.7900 - val_loss: 0.7397 - val_acc: 0.
5000
 31%|███        | 30/96 [04:43<10:11,  9.26s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.5519 - acc: 0.7850 - val_loss: 0.9259 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5411 - acc: 0.7900 - val_loss: 0.7696 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4931 - acc: 0.7900 - val_loss: 0.7975 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4327 - acc: 0.8000 - val_loss: 0.9881 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3825 - acc: 0.8300 - val_loss: 0.8034 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 33ms/step - loss: 0.3508 - acc: 0.8700 - val_loss: 1.2755 - val_acc: 0.
5625
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3291 - acc: 0.8300 - val_loss: 0.6439 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2147 - acc: 0.9300 - val_loss: 0.7391 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1801 - acc: 0.9350 - val_loss: 1.3906 - val_acc: 0.
5625
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1732 - acc: 0.9300 - val_loss: 1.5197 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1901 - acc: 0.9150 - val_loss: 0.5534 - val_acc: 0.
7500
Epoch 12/30
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7/7 [==============================] - 0s 34ms/step - loss: 0.1225 - acc: 0.9550 - val_loss: 0.7369 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0889 - acc: 0.9800 - val_loss: 0.6683 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1099 - acc: 0.9600 - val_loss: 1.3837 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0868 - acc: 0.9650 - val_loss: 0.7097 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0419 - acc: 0.9900 - val_loss: 0.8037 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0317 - acc: 0.9950 - val_loss: 1.1266 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0204 - acc: 1.0000 - val_loss: 1.1077 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0142 - acc: 1.0000 - val_loss: 1.2092 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0109 - acc: 1.0000 - val_loss: 1.3837 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0083 - acc: 1.0000 - val_loss: 1.1638 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0063 - acc: 1.0000 - val_loss: 1.4879 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0078 - acc: 1.0000 - val_loss: 1.0980 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0113 - acc: 1.0000 - val_loss: 1.7749 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0084 - acc: 1.0000 - val_loss: 0.9437 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0064 - acc: 1.0000 - val_loss: 1.3441 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0039 - acc: 1.0000 - val_loss: 1.4853 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0027 - acc: 1.0000 - val_loss: 1.2726 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0028 - acc: 1.0000 - val_loss: 1.3460 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0023 - acc: 1.0000 - val_loss: 1.4782 - val_acc: 0.
6875
 32%|███▏      | 31/96 [04:52<10:03,  9.28s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5945 - acc: 0.7350 - val_loss: 0.8180 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5294 - acc: 0.7900 - val_loss: 0.9514 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5161 - acc: 0.7900 - val_loss: 0.8971 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5126 - acc: 0.7900 - val_loss: 0.8936 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5117 - acc: 0.7900 - val_loss: 0.8403 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5052 - acc: 0.7900 - val_loss: 0.8835 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5021 - acc: 0.7900 - val_loss: 0.8487 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5001 - acc: 0.7900 - val_loss: 0.9094 - val_acc: 0.
```

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5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4992 - acc: 0.7900 - val_loss: 1.0334 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4967 - acc: 0.7900 - val_loss: 0.7839 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 32ms/step - loss: 0.4941 - acc: 0.7900 - val_loss: 0.9092 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4933 - acc: 0.7900 - val_loss: 1.0167 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4851 - acc: 0.7900 - val_loss: 0.7685 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4935 - acc: 0.7900 - val_loss: 0.7735 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4862 - acc: 0.7900 - val_loss: 0.8445 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4798 - acc: 0.7900 - val_loss: 0.8443 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 32ms/step - loss: 0.4734 - acc: 0.7900 - val_loss: 0.8220 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4762 - acc: 0.7900 - val_loss: 0.7120 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4853 - acc: 0.7900 - val_loss: 0.8874 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4712 - acc: 0.7900 - val_loss: 0.9216 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4679 - acc: 0.7900 - val_loss: 0.9527 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4662 - acc: 0.7900 - val_loss: 0.8415 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4582 - acc: 0.7900 - val_loss: 0.8475 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4577 - acc: 0.7900 - val_loss: 0.7665 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4531 - acc: 0.7900 - val_loss: 0.7882 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4483 - acc: 0.7900 - val_loss: 0.9120 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4492 - acc: 0.7900 - val_loss: 0.6853 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4423 - acc: 0.7900 - val_loss: 0.8644 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4364 - acc: 0.7900 - val_loss: 0.6914 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4434 - acc: 0.7900 - val_loss: 0.9073 - val_acc: 0.
5000
 33%|███▎      | 32/96 [05:01<09:52,  9.25s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5969 - acc: 0.7400 - val_loss: 0.7277 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5209 - acc: 0.7900 - val_loss: 1.2699 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5105 - acc: 0.7900 - val_loss: 0.9432 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4970 - acc: 0.7900 - val_loss: 0.7110 - val_acc: 0.
5000
```

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Epoch 5/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4522 - acc: 0.8350 - val_loss: 1.0691 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3909 - acc: 0.8450 - val_loss: 1.0445 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3174 - acc: 0.8850 - val_loss: 0.9865 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.2585 - acc: 0.8950 - val_loss: 0.6613 - val_acc: 0.
7500
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1888 - acc: 0.9400 - val_loss: 0.8397 - val_acc: 0.
6875
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1740 - acc: 0.9300 - val_loss: 1.2914 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1235 - acc: 0.9600 - val_loss: 1.5784 - val_acc: 0.
5625
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1224 - acc: 0.9450 - val_loss: 0.8428 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0680 - acc: 0.9900 - val_loss: 1.2842 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0616 - acc: 0.9800 - val_loss: 0.8850 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0434 - acc: 0.9950 - val_loss: 1.0900 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0307 - acc: 0.9950 - val_loss: 1.5830 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0254 - acc: 0.9950 - val_loss: 1.2281 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0210 - acc: 1.0000 - val_loss: 1.0124 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0147 - acc: 1.0000 - val_loss: 0.8738 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0181 - acc: 0.9950 - val_loss: 1.8088 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0129 - acc: 1.0000 - val_loss: 1.1525 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.3975 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0087 - acc: 1.0000 - val_loss: 1.3410 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0046 - acc: 1.0000 - val_loss: 1.2640 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0044 - acc: 1.0000 - val_loss: 1.3479 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0038 - acc: 1.0000 - val_loss: 1.3798 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0028 - acc: 1.0000 - val_loss: 1.3331 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0032 - acc: 1.0000 - val_loss: 1.4154 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0028 - acc: 1.0000 - val_loss: 1.2755 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0018 - acc: 1.0000 - val_loss: 1.5913 - val_acc: 0.
6875
 34%|███▍      | 33/96 [05:11<09:46,  9.32s/it]
Epoch 1/30
```

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7/7 [==============================] - 0s 50ms/step - loss: 0.5545 - acc: 0.7850 - val_loss: 0.8333 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5310 - acc: 0.7900 - val_loss: 0.8307 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5145 - acc: 0.7900 - val_loss: 0.9225 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5242 - acc: 0.7900 - val_loss: 1.0151 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5116 - acc: 0.7900 - val_loss: 0.9738 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 1.0573 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5066 - acc: 0.7900 - val_loss: 0.8957 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5218 - acc: 0.7900 - val_loss: 0.9721 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5032 - acc: 0.7900 - val_loss: 0.8560 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5111 - acc: 0.7900 - val_loss: 0.9288 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4864 - acc: 0.7900 - val_loss: 0.8828 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4946 - acc: 0.7900 - val_loss: 0.8943 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5104 - acc: 0.7900 - val_loss: 0.9235 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5079 - acc: 0.7900 - val_loss: 0.9999 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5014 - acc: 0.7900 - val_loss: 0.9482 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5046 - acc: 0.7900 - val_loss: 0.9607 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4932 - acc: 0.7900 - val_loss: 0.9653 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4962 - acc: 0.7900 - val_loss: 0.9704 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4987 - acc: 0.7900 - val_loss: 0.9812 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4938 - acc: 0.7900 - val_loss: 0.7943 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4918 - acc: 0.7900 - val_loss: 0.8075 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4855 - acc: 0.7900 - val_loss: 0.8650 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4884 - acc: 0.7900 - val_loss: 0.8443 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4824 - acc: 0.7900 - val_loss: 0.9735 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4696 - acc: 0.7900 - val_loss: 0.9438 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4877 - acc: 0.7900 - val_loss: 0.9786 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4701 - acc: 0.7900 - val_loss: 0.7261 - val_acc: 0.
5000
Epoch 28/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4723 - acc: 0.7900 - val_loss: 0.8470 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4605 - acc: 0.7900 - val_loss: 1.0287 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4783 - acc: 0.7900 - val_loss: 1.1753 - val_acc: 0.
5000
 35%|███       | 34/96 [05:20<09:34,  9.26s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.6424 - acc: 0.7150 - val_loss: 0.8475 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5394 - acc: 0.7900 - val_loss: 0.8364 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5370 - acc: 0.7950 - val_loss: 0.7979 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5061 - acc: 0.7900 - val_loss: 0.7976 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4645 - acc: 0.8000 - val_loss: 0.9382 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4155 - acc: 0.8400 - val_loss: 0.9612 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 33ms/step - loss: 0.3853 - acc: 0.8350 - val_loss: 0.5525 - val_acc: 0.
6875
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.3115 - acc: 0.8900 - val_loss: 1.2159 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 33ms/step - loss: 0.2939 - acc: 0.8900 - val_loss: 0.7625 - val_acc: 0.
7500
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2019 - acc: 0.9250 - val_loss: 0.7912 - val_acc: 0.
7500
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1549 - acc: 0.9500 - val_loss: 1.2571 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1228 - acc: 0.9700 - val_loss: 0.8338 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1257 - acc: 0.9650 - val_loss: 0.9009 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1007 - acc: 0.9650 - val_loss: 0.5327 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1240 - acc: 0.9400 - val_loss: 1.5576 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0733 - acc: 0.9800 - val_loss: 0.9796 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0545 - acc: 0.9900 - val_loss: 1.3628 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0354 - acc: 0.9950 - val_loss: 1.1487 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0261 - acc: 1.0000 - val_loss: 1.1865 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0187 - acc: 1.0000 - val_loss: 1.4165 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0189 - acc: 0.9950 - val_loss: 1.1769 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0108 - acc: 1.0000 - val_loss: 1.4305 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0087 - acc: 1.0000 - val_loss: 1.2800 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0071 - acc: 1.0000 - val_loss: 1.5350 - val_acc: 0.
6875
```

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Epoch 25/30
7/7 [==============================] - 0s 32ms/step - loss: 0.0067 - acc: 1.0000 - val_loss: 1.4808 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0068 - acc: 1.0000 - val_loss: 1.4534 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0043 - acc: 1.0000 - val_loss: 1.5983 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.6142 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.6611 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0026 - acc: 1.0000 - val_loss: 1.6693 - val_acc: 0.
6875
 36%|███▌      | 35/96 [05:29<09:22,  9.22s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.5792 - acc: 0.7350 - val_loss: 0.7995 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5277 - acc: 0.7900 - val_loss: 0.7543 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5345 - acc: 0.7900 - val_loss: 0.7960 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5155 - acc: 0.7900 - val_loss: 0.9352 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5176 - acc: 0.7900 - val_loss: 0.6881 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5575 - acc: 0.7700 - val_loss: 0.9364 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5139 - acc: 0.7900 - val_loss: 0.7767 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5145 - acc: 0.7900 - val_loss: 1.0055 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 32ms/step - loss: 0.5252 - acc: 0.7900 - val_loss: 0.9273 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5023 - acc: 0.7900 - val_loss: 0.9763 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4999 - acc: 0.7900 - val_loss: 0.8815 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5022 - acc: 0.7900 - val_loss: 0.7317 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5004 - acc: 0.7900 - val_loss: 0.9559 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5165 - acc: 0.7900 - val_loss: 0.9385 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5105 - acc: 0.7900 - val_loss: 0.8170 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5016 - acc: 0.7900 - val_loss: 0.9183 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5022 - acc: 0.7900 - val_loss: 0.9135 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4843 - acc: 0.7900 - val_loss: 0.8307 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5036 - acc: 0.7900 - val_loss: 0.9197 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 32ms/step - loss: 0.4812 - acc: 0.7900 - val_loss: 1.0288 - val_acc: 0.
5000
Epoch 21/30
```

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7/7 [==============================] - 0s 33ms/step - loss: 0.4800 - acc: 0.7900 - val_loss: 0.9681 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4852 - acc: 0.7900 - val_loss: 0.8916 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4793 - acc: 0.7900 - val_loss: 0.9395 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4706 - acc: 0.7900 - val_loss: 0.8107 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4706 - acc: 0.7950 - val_loss: 1.1050 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4942 - acc: 0.7900 - val_loss: 0.9872 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4706 - acc: 0.7900 - val_loss: 0.9262 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4554 - acc: 0.7900 - val_loss: 0.9852 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4460 - acc: 0.7900 - val_loss: 0.8588 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4397 - acc: 0.7950 - val_loss: 1.0149 - val_acc: 0.
5000
 38%|███▊      | 36/96 [05:38<09:07,  9.12s/it]
Epoch 1/30
7/7 [==============================] - 0s 46ms/step - loss: 0.5755 - acc: 0.7900 - val_loss: 1.0057 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4841 - acc: 0.7900 - val_loss: 0.9787 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4859 - acc: 0.8100 - val_loss: 1.0648 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.3917 - acc: 0.8050 - val_loss: 0.6682 - val_acc: 0.
6250
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3581 - acc: 0.8600 - val_loss: 0.7216 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2911 - acc: 0.8850 - val_loss: 1.1552 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 38ms/step - loss: 0.2278 - acc: 0.9150 - val_loss: 0.8448 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1847 - acc: 0.9250 - val_loss: 0.6902 - val_acc: 0.
8125
Epoch 9/30
7/7 [==============================] - 0s 33ms/step - loss: 0.2249 - acc: 0.9000 - val_loss: 2.0926 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 33ms/step - loss: 0.2818 - acc: 0.8850 - val_loss: 0.5245 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1918 - acc: 0.9050 - val_loss: 0.8379 - val_acc: 0.
8125
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1061 - acc: 0.9700 - val_loss: 1.5121 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0831 - acc: 0.9650 - val_loss: 0.8704 - val_acc: 0.
8125
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0452 - acc: 0.9900 - val_loss: 1.0621 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0331 - acc: 1.0000 - val_loss: 1.1069 - val_acc: 0.
8125
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0256 - acc: 1.0000 - val_loss: 1.3171 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0181 - acc: 1.0000 - val_loss: 1.1344 - val_acc: 0.
```

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8125
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0173 - acc: 1.0000 - val_loss: 1.3852 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0159 - acc: 1.0000 - val_loss: 1.4015 - val_acc: 0.
8125
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0120 - acc: 1.0000 - val_loss: 1.0407 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0328 - acc: 0.9850 - val_loss: 1.7425 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0357 - acc: 0.9900 - val_loss: 0.9757 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0195 - acc: 0.9950 - val_loss: 1.7279 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0101 - acc: 1.0000 - val_loss: 1.4213 - val_acc: 0.
8125
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0076 - acc: 1.0000 - val_loss: 1.5176 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0068 - acc: 1.0000 - val_loss: 1.4349 - val_acc: 0.
8125
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0037 - acc: 1.0000 - val_loss: 1.3637 - val_acc: 0.
8125
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0041 - acc: 1.0000 - val_loss: 1.5839 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0026 - acc: 1.0000 - val_loss: 1.6939 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 32ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.6927 - val_acc: 0.
7500
 39%|███▉      | 37/96 [05:47<09:00,  9.16s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5824 - acc: 0.7900 - val_loss: 0.7943 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5222 - acc: 0.7900 - val_loss: 0.9449 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5158 - acc: 0.7900 - val_loss: 0.9385 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5186 - acc: 0.7900 - val_loss: 0.8859 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5071 - acc: 0.7900 - val_loss: 0.8492 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5146 - acc: 0.7900 - val_loss: 0.8094 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5131 - acc: 0.7900 - val_loss: 0.9047 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5021 - acc: 0.7900 - val_loss: 0.8067 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5016 - acc: 0.7900 - val_loss: 0.8828 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5015 - acc: 0.7900 - val_loss: 0.9174 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5015 - acc: 0.7900 - val_loss: 1.0014 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4963 - acc: 0.7900 - val_loss: 0.8648 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5002 - acc: 0.7900 - val_loss: 0.8156 - val_acc: 0.
5000
```

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Epoch 14/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 0.8301 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4996 - acc: 0.7900 - val_loss: 0.9680 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5014 - acc: 0.7900 - val_loss: 0.9437 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4956 - acc: 0.7900 - val_loss: 0.9108 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4986 - acc: 0.7900 - val_loss: 0.9182 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4947 - acc: 0.7900 - val_loss: 0.8823 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4879 - acc: 0.7900 - val_loss: 0.9271 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4839 - acc: 0.7900 - val_loss: 1.0174 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4941 - acc: 0.7900 - val_loss: 0.9882 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4884 - acc: 0.7900 - val_loss: 0.8409 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4786 - acc: 0.7900 - val_loss: 0.9175 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4839 - acc: 0.7900 - val_loss: 0.8842 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4708 - acc: 0.7900 - val_loss: 0.8462 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4752 - acc: 0.7900 - val_loss: 0.8897 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4690 - acc: 0.7900 - val_loss: 0.7862 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4742 - acc: 0.7900 - val_loss: 0.6901 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4823 - acc: 0.7900 - val_loss: 0.9083 - val_acc: 0.
5000
 40%|████       | 38/96 [05:56<08:50,  9.14s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6091 - acc: 0.6950 - val_loss: 0.7881 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5592 - acc: 0.7900 - val_loss: 0.9763 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5254 - acc: 0.7900 - val_loss: 0.8019 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4937 - acc: 0.7900 - val_loss: 1.0164 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5115 - acc: 0.7900 - val_loss: 0.7396 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4789 - acc: 0.7900 - val_loss: 0.9212 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4361 - acc: 0.7900 - val_loss: 0.8683 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3928 - acc: 0.8000 - val_loss: 1.4682 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4757 - acc: 0.8050 - val_loss: 0.5690 - val_acc: 0.
7500
Epoch 10/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4326 - acc: 0.7850 - val_loss: 1.1345 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4026 - acc: 0.7900 - val_loss: 0.8572 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3627 - acc: 0.7950 - val_loss: 0.8386 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3240 - acc: 0.8550 - val_loss: 0.8908 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2933 - acc: 0.8750 - val_loss: 1.1895 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2265 - acc: 0.9300 - val_loss: 0.8413 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2031 - acc: 0.9250 - val_loss: 1.5647 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1935 - acc: 0.9200 - val_loss: 1.7276 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1703 - acc: 0.9250 - val_loss: 0.6039 - val_acc: 0.
8125
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2292 - acc: 0.9000 - val_loss: 1.0428 - val_acc: 0.
6250
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1601 - acc: 0.9500 - val_loss: 1.4311 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2006 - acc: 0.9000 - val_loss: 0.6134 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1480 - acc: 0.9600 - val_loss: 1.5457 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1098 - acc: 0.9550 - val_loss: 0.8836 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0814 - acc: 0.9700 - val_loss: 1.1156 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0903 - acc: 0.9700 - val_loss: 1.1930 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0493 - acc: 0.9950 - val_loss: 1.0975 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0390 - acc: 1.0000 - val_loss: 1.2732 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0465 - acc: 0.9900 - val_loss: 1.1254 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0389 - acc: 0.9950 - val_loss: 1.6729 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0606 - acc: 0.9800 - val_loss: 0.6754 - val_acc: 0.
8125
 41%|████      | 39/96 [06:06<08:46,  9.24s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6227 - acc: 0.6900 - val_loss: 0.8015 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5226 - acc: 0.7900 - val_loss: 0.8171 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5014 - acc: 0.7900 - val_loss: 0.8409 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5108 - acc: 0.7900 - val_loss: 0.8367 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5134 - acc: 0.7900 - val_loss: 0.9248 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4921 - acc: 0.7900 - val_loss: 0.9568 - val_acc: 0.
5000
```

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Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5034 - acc: 0.7900 - val_loss: 0.8234 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4997 - acc: 0.7900 - val_loss: 0.8401 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5038 - acc: 0.7900 - val_loss: 0.8785 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4992 - acc: 0.7900 - val_loss: 0.8889 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4891 - acc: 0.7900 - val_loss: 0.9000 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4922 - acc: 0.7900 - val_loss: 0.8614 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4752 - acc: 0.7900 - val_loss: 0.9326 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4947 - acc: 0.7900 - val_loss: 1.0470 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4775 - acc: 0.7900 - val_loss: 0.9025 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5025 - acc: 0.7900 - val_loss: 1.0024 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4800 - acc: 0.7900 - val_loss: 0.9415 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4778 - acc: 0.7900 - val_loss: 1.0112 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4749 - acc: 0.7900 - val_loss: 1.0482 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4891 - acc: 0.7900 - val_loss: 0.7932 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4877 - acc: 0.7900 - val_loss: 0.8021 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4707 - acc: 0.7900 - val_loss: 0.8523 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4534 - acc: 0.7900 - val_loss: 0.9191 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4662 - acc: 0.7900 - val_loss: 0.8174 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4611 - acc: 0.7900 - val_loss: 0.9139 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4565 - acc: 0.7900 - val_loss: 0.9392 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4528 - acc: 0.7900 - val_loss: 0.7481 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4572 - acc: 0.7950 - val_loss: 0.9794 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4496 - acc: 0.7950 - val_loss: 0.6760 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4531 - acc: 0.7950 - val_loss: 0.8160 - val_acc: 0.
5000
 42%|████▏       | 40/96 [06:15<08:38,  9.25s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5920 - acc: 0.7500 - val_loss: 0.7018 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5824 - acc: 0.7750 - val_loss: 0.8739 - val_acc: 0.
5000
Epoch 3/30
```

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7/7 [==============================] - 0s 34ms/step - loss: 0.5199 - acc: 0.7900 - val_loss: 0.8247 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5227 - acc: 0.7800 - val_loss: 1.0760 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4825 - acc: 0.7950 - val_loss: 0.7688 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4683 - acc: 0.8000 - val_loss: 1.1816 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4706 - acc: 0.7900 - val_loss: 0.6487 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4321 - acc: 0.8350 - val_loss: 1.0635 - val_acc: 0.
5625
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4096 - acc: 0.8500 - val_loss: 0.8602 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3797 - acc: 0.8350 - val_loss: 0.6313 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2979 - acc: 0.8950 - val_loss: 1.3673 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2855 - acc: 0.9000 - val_loss: 0.9553 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2162 - acc: 0.9200 - val_loss: 1.1138 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1892 - acc: 0.9400 - val_loss: 1.1598 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1812 - acc: 0.9250 - val_loss: 1.6047 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1590 - acc: 0.9400 - val_loss: 0.5919 - val_acc: 0.
8125
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1390 - acc: 0.9350 - val_loss: 1.3555 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1451 - acc: 0.9450 - val_loss: 0.9738 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0955 - acc: 0.9650 - val_loss: 0.6842 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0750 - acc: 0.9750 - val_loss: 1.5878 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0803 - acc: 0.9700 - val_loss: 1.5959 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0732 - acc: 0.9750 - val_loss: 1.1314 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0431 - acc: 0.9800 - val_loss: 1.1491 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0313 - acc: 0.9950 - val_loss: 1.6321 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0350 - acc: 0.9900 - val_loss: 1.5964 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0482 - acc: 0.9900 - val_loss: 0.6494 - val_acc: 0.
8750
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0940 - acc: 0.9600 - val_loss: 2.5586 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0780 - acc: 0.9750 - val_loss: 0.9305 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0574 - acc: 0.9700 - val_loss: 1.4075 - val_acc: 0.
6875
Epoch 30/30
```

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7/7 [==============================] - 0s 38ms/step - loss: 0.0370 - acc: 1.0000 - val_loss: 0.5499 - val_acc: 0.
8750
 43%|████▎       | 41/96 [06:24<08:30,  9.29s/it]
Epoch 1/30
7/7 [==============================] - 0s 52ms/step - loss: 0.6239 - acc: 0.7250 - val_loss: 0.7714 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5459 - acc: 0.7900 - val_loss: 0.8789 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5054 - acc: 0.7900 - val_loss: 0.9127 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5045 - acc: 0.7900 - val_loss: 0.8713 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5197 - acc: 0.7900 - val_loss: 0.9080 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5278 - acc: 0.7900 - val_loss: 0.9179 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5223 - acc: 0.7900 - val_loss: 0.9060 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5242 - acc: 0.7900 - val_loss: 0.8959 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4890 - acc: 0.7900 - val_loss: 0.9393 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5289 - acc: 0.7900 - val_loss: 0.8625 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5106 - acc: 0.7900 - val_loss: 0.8415 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4984 - acc: 0.7900 - val_loss: 0.9580 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.8723 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5126 - acc: 0.7900 - val_loss: 0.8557 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5040 - acc: 0.7900 - val_loss: 0.8897 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5287 - acc: 0.7900 - val_loss: 0.8484 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5194 - acc: 0.7900 - val_loss: 0.8675 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5084 - acc: 0.7900 - val_loss: 0.9487 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5026 - acc: 0.7900 - val_loss: 0.8867 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4964 - acc: 0.7900 - val_loss: 0.8793 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5136 - acc: 0.7900 - val_loss: 0.8174 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5028 - acc: 0.7900 - val_loss: 0.9325 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4955 - acc: 0.7900 - val_loss: 0.9100 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5014 - acc: 0.7900 - val_loss: 0.9617 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5089 - acc: 0.7900 - val_loss: 0.9307 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5034 - acc: 0.7900 - val_loss: 0.8735 - val_acc: 0.
```

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5000
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4993 - acc: 0.7900 - val_loss: 0.8753 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5017 - acc: 0.7900 - val_loss: 0.8790 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4936 - acc: 0.7900 - val_loss: 0.8263 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4838 - acc: 0.7900 - val_loss: 0.7610 - val_acc: 0.
5000
 44%|████▍      | 42/96 [06:34<08:23,  9.33s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.7124 - acc: 0.7050 - val_loss: 1.1162 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4886 - acc: 0.7900 - val_loss: 0.8760 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4534 - acc: 0.7900 - val_loss: 0.6196 - val_acc: 0.
6250
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4414 - acc: 0.8500 - val_loss: 1.2778 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3844 - acc: 0.8300 - val_loss: 0.5512 - val_acc: 0.
7500
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3554 - acc: 0.8700 - val_loss: 0.6624 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3026 - acc: 0.8800 - val_loss: 0.7851 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2106 - acc: 0.9300 - val_loss: 1.4319 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1784 - acc: 0.9500 - val_loss: 0.7789 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 39ms/step - loss: 0.1323 - acc: 0.9400 - val_loss: 0.6588 - val_acc: 0.
7500
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1166 - acc: 0.9550 - val_loss: 1.4585 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1127 - acc: 0.9400 - val_loss: 0.9457 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 39ms/step - loss: 0.0794 - acc: 0.9750 - val_loss: 0.5674 - val_acc: 0.
8125
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0619 - acc: 0.9900 - val_loss: 1.1862 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0326 - acc: 1.0000 - val_loss: 0.9255 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0234 - acc: 1.0000 - val_loss: 1.0507 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0194 - acc: 1.0000 - val_loss: 1.4829 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0262 - acc: 0.9950 - val_loss: 0.4642 - val_acc: 0.
8750
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0366 - acc: 0.9950 - val_loss: 1.2346 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0132 - acc: 1.0000 - val_loss: 1.0016 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0112 - acc: 1.0000 - val_loss: 1.0363 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0158 - acc: 1.0000 - val_loss: 1.2991 - val_acc: 0.
6875
```

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Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0126 - acc: 1.0000 - val_loss: 0.9551 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0112 - acc: 1.0000 - val_loss: 1.1591 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0093 - acc: 1.0000 - val_loss: 1.2764 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0038 - acc: 1.0000 - val_loss: 1.1356 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0038 - acc: 1.0000 - val_loss: 1.4741 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0026 - acc: 1.0000 - val_loss: 1.2924 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0028 - acc: 1.0000 - val_loss: 1.4307 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0022 - acc: 1.0000 - val_loss: 1.6691 - val_acc: 0.
6875
 45%|████▌     | 43/96 [06:43<08:19,  9.42s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5619 - acc: 0.7800 - val_loss: 0.8782 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5129 - acc: 0.7900 - val_loss: 1.0539 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5190 - acc: 0.7900 - val_loss: 1.0592 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5222 - acc: 0.7900 - val_loss: 0.8907 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5115 - acc: 0.7900 - val_loss: 0.8421 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5066 - acc: 0.7900 - val_loss: 0.9724 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5150 - acc: 0.7900 - val_loss: 0.9981 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.9459 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5008 - acc: 0.7900 - val_loss: 0.9469 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4990 - acc: 0.7900 - val_loss: 0.9159 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5076 - acc: 0.7900 - val_loss: 0.8601 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5032 - acc: 0.7900 - val_loss: 0.9216 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4875 - acc: 0.7900 - val_loss: 0.8853 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4928 - acc: 0.7900 - val_loss: 0.8785 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4942 - acc: 0.7900 - val_loss: 0.8971 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4937 - acc: 0.7900 - val_loss: 0.7218 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5048 - acc: 0.7900 - val_loss: 0.9784 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4929 - acc: 0.7900 - val_loss: 0.7773 - val_acc: 0.
5000
Epoch 19/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4811 - acc: 0.7900 - val_loss: 0.8597 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4828 - acc: 0.7900 - val_loss: 0.8824 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4825 - acc: 0.7900 - val_loss: 0.8361 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4681 - acc: 0.7900 - val_loss: 0.8258 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4697 - acc: 0.7900 - val_loss: 0.8605 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4716 - acc: 0.7900 - val_loss: 0.9988 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4665 - acc: 0.7900 - val_loss: 0.8128 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4716 - acc: 0.7900 - val_loss: 0.7794 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4635 - acc: 0.7900 - val_loss: 1.0468 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4665 - acc: 0.7900 - val_loss: 0.9782 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4543 - acc: 0.7900 - val_loss: 0.8416 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4456 - acc: 0.7900 - val_loss: 0.6822 - val_acc: 0.
6250
 46%|████      | 44/96 [06:53<08:08,  9.39s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.7406 - acc: 0.5850 - val_loss: 1.0861 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5035 - acc: 0.7900 - val_loss: 0.8878 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4924 - acc: 0.7900 - val_loss: 0.7030 - val_acc: 0.
6250
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.4292 - acc: 0.8450 - val_loss: 1.3341 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4795 - acc: 0.8250 - val_loss: 0.7831 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3853 - acc: 0.8200 - val_loss: 0.8303 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3194 - acc: 0.8750 - val_loss: 0.7134 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2685 - acc: 0.8950 - val_loss: 0.5718 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2563 - acc: 0.8950 - val_loss: 0.6034 - val_acc: 0.
7500
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2083 - acc: 0.9300 - val_loss: 1.3402 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1612 - acc: 0.9300 - val_loss: 0.7369 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 33ms/step - loss: 0.1439 - acc: 0.9350 - val_loss: 0.6872 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1559 - acc: 0.9300 - val_loss: 1.2046 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0838 - acc: 0.9800 - val_loss: 0.6264 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 33ms/step - loss: 0.0718 - acc: 0.9950 - val_loss: 1.1283 - val_acc: 0.
6875
```

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Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0559 - acc: 0.9850 - val_loss: 0.7296 - val_acc: 0.
8125
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0423 - acc: 0.9900 - val_loss: 1.3549 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0371 - acc: 0.9950 - val_loss: 0.7153 - val_acc: 0.
8125
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0292 - acc: 1.0000 - val_loss: 1.3796 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0246 - acc: 1.0000 - val_loss: 0.8381 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0162 - acc: 1.0000 - val_loss: 1.2722 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0141 - acc: 1.0000 - val_loss: 0.8773 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0130 - acc: 1.0000 - val_loss: 1.3188 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.0761 - val_acc: 0.
8125
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0073 - acc: 1.0000 - val_loss: 1.2718 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0059 - acc: 1.0000 - val_loss: 1.2516 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0062 - acc: 1.0000 - val_loss: 1.1575 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0042 - acc: 1.0000 - val_loss: 1.3726 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0041 - acc: 1.0000 - val_loss: 1.3026 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0032 - acc: 1.0000 - val_loss: 1.3376 - val_acc: 0.
7500
 47%|████▋      | 45/96 [07:02<07:56,  9.34s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.5621 - acc: 0.7800 - val_loss: 0.8949 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5311 - acc: 0.7900 - val_loss: 0.8184 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5210 - acc: 0.7900 - val_loss: 0.8459 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5202 - acc: 0.7900 - val_loss: 0.8999 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5082 - acc: 0.7900 - val_loss: 0.8838 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5016 - acc: 0.7900 - val_loss: 0.7947 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5083 - acc: 0.7900 - val_loss: 0.9748 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5090 - acc: 0.7900 - val_loss: 0.8461 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5139 - acc: 0.7900 - val_loss: 0.9073 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5053 - acc: 0.7900 - val_loss: 0.8793 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4979 - acc: 0.7900 - val_loss: 0.8801 - val_acc: 0.
5000
Epoch 12/30
```

```
7/7 [==============================] - 0s 34ms/step - loss: 0.4962 - acc: 0.7900 - val_loss: 0.8593 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5086 - acc: 0.7900 - val_loss: 0.7501 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4937 - acc: 0.7900 - val_loss: 0.8614 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4931 - acc: 0.7900 - val_loss: 0.8965 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4912 - acc: 0.7900 - val_loss: 0.8684 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4786 - acc: 0.7900 - val_loss: 0.8563 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4703 - acc: 0.7900 - val_loss: 0.8757 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4852 - acc: 0.7900 - val_loss: 0.9087 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4681 - acc: 0.7900 - val_loss: 0.9727 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4817 - acc: 0.7900 - val_loss: 0.9514 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4717 - acc: 0.7900 - val_loss: 0.8117 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4641 - acc: 0.7900 - val_loss: 0.9563 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4664 - acc: 0.7900 - val_loss: 0.7390 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4605 - acc: 0.7900 - val_loss: 0.6820 - val_acc: 0.
5625
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4624 - acc: 0.7950 - val_loss: 0.9103 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4788 - acc: 0.7950 - val_loss: 0.7292 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4466 - acc: 0.8000 - val_loss: 0.8261 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4304 - acc: 0.7900 - val_loss: 0.6932 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4341 - acc: 0.7900 - val_loss: 0.7726 - val_acc: 0.
5000
 48%|████▊      | 46/96 [07:11<07:46,  9.33s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.6050 - acc: 0.6850 - val_loss: 0.8142 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4860 - acc: 0.7900 - val_loss: 0.7422 - val_acc: 0.
6250
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4164 - acc: 0.8350 - val_loss: 0.8013 - val_acc: 0.
6250
Epoch 4/30
7/7 [==============================] - 0s 38ms/step - loss: 0.3141 - acc: 0.8700 - val_loss: 1.9534 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 39ms/step - loss: 0.4563 - acc: 0.8250 - val_loss: 1.3553 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3534 - acc: 0.8450 - val_loss: 0.6087 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2430 - acc: 0.9100 - val_loss: 1.0733 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2395 - acc: 0.9050 - val_loss: 1.1711 - val_acc: 0.
```

```
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1966 - acc: 0.9250 - val_loss: 0.5716 - val_acc: 0.
7500
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1568 - acc: 0.9450 - val_loss: 1.2103 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1448 - acc: 0.9450 - val_loss: 1.0003 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1259 - acc: 0.9450 - val_loss: 0.8119 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0789 - acc: 0.9900 - val_loss: 1.1041 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0637 - acc: 0.9900 - val_loss: 0.8977 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0487 - acc: 0.9950 - val_loss: 0.9468 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0410 - acc: 0.9950 - val_loss: 1.1876 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0365 - acc: 1.0000 - val_loss: 1.3410 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0286 - acc: 0.9950 - val_loss: 1.2199 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0197 - acc: 1.0000 - val_loss: 1.1981 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0163 - acc: 1.0000 - val_loss: 1.4303 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0115 - acc: 1.0000 - val_loss: 1.4253 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0114 - acc: 1.0000 - val_loss: 1.7207 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0137 - acc: 1.0000 - val_loss: 1.3267 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0076 - acc: 1.0000 - val_loss: 1.6696 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0062 - acc: 1.0000 - val_loss: 1.4520 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0056 - acc: 1.0000 - val_loss: 1.6348 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0049 - acc: 1.0000 - val_loss: 1.5510 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0051 - acc: 1.0000 - val_loss: 1.6109 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0033 - acc: 1.0000 - val_loss: 1.7941 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0044 - acc: 1.0000 - val_loss: 1.8234 - val_acc: 0.
6875
 49%|████▉     | 47/96 [07:21<07:40,  9.41s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.5891 - acc: 0.7050 - val_loss: 0.8073 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5295 - acc: 0.7900 - val_loss: 1.1238 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5134 - acc: 0.7900 - val_loss: 0.8691 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5088 - acc: 0.7900 - val_loss: 0.9492 - val_acc: 0.
5000
```

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Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4871 - acc: 0.7900 - val_loss: 0.8234 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4939 - acc: 0.7850 - val_loss: 0.9345 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5068 - acc: 0.7900 - val_loss: 1.0541 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4973 - acc: 0.7900 - val_loss: 0.8735 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4924 - acc: 0.7900 - val_loss: 0.9072 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4859 - acc: 0.7900 - val_loss: 0.8317 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4993 - acc: 0.7900 - val_loss: 0.8826 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4745 - acc: 0.7900 - val_loss: 0.8508 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4831 - acc: 0.7900 - val_loss: 0.7273 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4565 - acc: 0.8000 - val_loss: 0.8969 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4818 - acc: 0.7900 - val_loss: 0.9633 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4563 - acc: 0.7950 - val_loss: 0.8634 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4562 - acc: 0.7900 - val_loss: 0.7014 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4609 - acc: 0.7900 - val_loss: 1.0034 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4587 - acc: 0.7900 - val_loss: 0.9418 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4484 - acc: 0.7900 - val_loss: 0.9083 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4342 - acc: 0.7950 - val_loss: 0.8291 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4401 - acc: 0.7950 - val_loss: 1.0097 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4314 - acc: 0.7900 - val_loss: 1.0032 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4421 - acc: 0.7950 - val_loss: 0.9273 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4426 - acc: 0.8050 - val_loss: 0.9225 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4139 - acc: 0.8050 - val_loss: 0.9855 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4093 - acc: 0.8150 - val_loss: 0.8388 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4269 - acc: 0.7950 - val_loss: 0.9070 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4112 - acc: 0.8100 - val_loss: 0.9656 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3965 - acc: 0.8200 - val_loss: 0.9366 - val_acc: 0.
5000
 50%|████▌     | 48/96 [07:30<07:30,  9.39s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.5546 - acc: 0.7100 - val_loss: 0.9656 - val_acc: 0.
```

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5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5360 - acc: 0.7900 - val_loss: 0.7589 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5092 - acc: 0.7900 - val_loss: 1.0770 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5078 - acc: 0.7900 - val_loss: 0.7932 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4765 - acc: 0.7900 - val_loss: 0.9955 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4881 - acc: 0.7900 - val_loss: 0.9194 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4702 - acc: 0.7900 - val_loss: 0.7279 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5151 - acc: 0.8700 - val_loss: 0.7825 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4386 - acc: 0.7900 - val_loss: 0.8418 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3650 - acc: 0.8150 - val_loss: 0.8413 - val_acc: 0.
5625
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3226 - acc: 0.8550 - val_loss: 0.7463 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2599 - acc: 0.8900 - val_loss: 0.6375 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2377 - acc: 0.9300 - val_loss: 0.6089 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2276 - acc: 0.9100 - val_loss: 0.5567 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3004 - acc: 0.8600 - val_loss: 1.3233 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1823 - acc: 0.9450 - val_loss: 1.0632 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1566 - acc: 0.9150 - val_loss: 0.9330 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1549 - acc: 0.9350 - val_loss: 0.6812 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1444 - acc: 0.9450 - val_loss: 0.8612 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1067 - acc: 0.9450 - val_loss: 1.1455 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0662 - acc: 0.9850 - val_loss: 0.8045 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0798 - acc: 0.9750 - val_loss: 1.7963 - val_acc: 0.
5625
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0677 - acc: 0.9750 - val_loss: 0.9363 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0473 - acc: 0.9900 - val_loss: 1.3476 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0400 - acc: 0.9900 - val_loss: 1.0851 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0331 - acc: 0.9900 - val_loss: 1.2988 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0270 - acc: 0.9950 - val_loss: 1.8168 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0430 - acc: 0.9850 - val_loss: 1.1250 - val_acc: 0.
```

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7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0215 - acc: 0.9950 - val_loss: 1.5655 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0152 - acc: 1.0000 - val_loss: 1.3871 - val_acc: 0.
6875
 51%|█████     | 49/96 [07:40<07:24,  9.47s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6112 - acc: 0.7750 - val_loss: 0.8022 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5294 - acc: 0.7900 - val_loss: 0.7748 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5228 - acc: 0.7900 - val_loss: 0.9538 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5171 - acc: 0.7900 - val_loss: 0.8960 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5129 - acc: 0.7900 - val_loss: 0.8057 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5072 - acc: 0.7900 - val_loss: 0.9480 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5061 - acc: 0.7900 - val_loss: 0.9551 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 1.0026 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5083 - acc: 0.7900 - val_loss: 0.9464 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 39ms/step - loss: 0.5072 - acc: 0.7900 - val_loss: 0.9706 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5107 - acc: 0.7900 - val_loss: 0.9583 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4986 - acc: 0.7900 - val_loss: 0.8120 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5045 - acc: 0.7900 - val_loss: 1.0454 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4968 - acc: 0.7900 - val_loss: 0.9464 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4949 - acc: 0.7900 - val_loss: 0.9254 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4900 - acc: 0.7900 - val_loss: 0.9275 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5044 - acc: 0.7900 - val_loss: 0.9229 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4859 - acc: 0.7900 - val_loss: 0.8042 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4778 - acc: 0.7900 - val_loss: 0.8246 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4826 - acc: 0.7900 - val_loss: 1.0497 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4979 - acc: 0.7900 - val_loss: 0.9603 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4761 - acc: 0.7900 - val_loss: 0.8709 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4733 - acc: 0.7900 - val_loss: 0.7570 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4813 - acc: 0.7900 - val_loss: 0.7459 - val_acc: 0.
5000
Epoch 25/30
```

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7/7 [==============================] - 0s 38ms/step - loss: 0.4782 - acc: 0.7900 - val_loss: 1.0749 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4867 - acc: 0.7900 - val_loss: 0.9110 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4652 - acc: 0.7900 - val_loss: 0.9616 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4653 - acc: 0.7900 - val_loss: 0.9167 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4727 - acc: 0.7900 - val_loss: 1.0685 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4740 - acc: 0.7900 - val_loss: 0.9469 - val_acc: 0.
5000
 52%|█████▏      | 50/96 [07:49<07:17,  9.51s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6004 - acc: 0.6900 - val_loss: 0.9917 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5202 - acc: 0.7900 - val_loss: 0.7926 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5219 - acc: 0.7900 - val_loss: 0.8897 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5160 - acc: 0.7900 - val_loss: 0.9132 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4922 - acc: 0.7900 - val_loss: 1.0171 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4832 - acc: 0.7900 - val_loss: 0.7116 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4779 - acc: 0.7900 - val_loss: 1.0421 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4575 - acc: 0.7900 - val_loss: 0.8308 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3941 - acc: 0.7900 - val_loss: 0.7051 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3474 - acc: 0.8450 - val_loss: 0.6498 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3075 - acc: 0.8950 - val_loss: 1.2708 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2868 - acc: 0.8700 - val_loss: 1.1645 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2496 - acc: 0.8700 - val_loss: 1.2396 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2933 - acc: 0.8700 - val_loss: 0.9211 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2633 - acc: 0.8700 - val_loss: 0.7454 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2276 - acc: 0.8900 - val_loss: 0.9374 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1982 - acc: 0.8900 - val_loss: 1.0560 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2100 - acc: 0.8750 - val_loss: 1.4539 - val_acc: 0.
5625
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1471 - acc: 0.8900 - val_loss: 0.8214 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1428 - acc: 0.9350 - val_loss: 0.9618 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1122 - acc: 0.9600 - val_loss: 1.1416 - val_acc: 0.
```

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6875
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1024 - acc: 0.9650 - val_loss: 1.0302 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0854 - acc: 0.9600 - val_loss: 1.7467 - val_acc: 0.
5625
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0988 - acc: 0.9450 - val_loss: 1.8277 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1038 - acc: 0.9400 - val_loss: 1.2877 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0662 - acc: 0.9800 - val_loss: 1.0438 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0616 - acc: 0.9800 - val_loss: 1.8306 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0593 - acc: 0.9700 - val_loss: 1.3266 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0549 - acc: 0.9900 - val_loss: 2.0684 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0649 - acc: 0.9600 - val_loss: 1.2935 - val_acc: 0.
6875
 53%|█████     | 51/96 [07:59<07:07,  9.50s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6103 - acc: 0.7900 - val_loss: 0.7581 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5370 - acc: 0.7900 - val_loss: 0.8166 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5215 - acc: 0.7900 - val_loss: 0.8573 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5218 - acc: 0.7900 - val_loss: 0.8957 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5347 - acc: 0.7900 - val_loss: 0.8606 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5229 - acc: 0.7900 - val_loss: 0.8919 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5077 - acc: 0.7900 - val_loss: 0.8864 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5186 - acc: 0.7900 - val_loss: 0.8052 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 0.8492 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5091 - acc: 0.7900 - val_loss: 0.8811 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5078 - acc: 0.7900 - val_loss: 0.9115 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5146 - acc: 0.7900 - val_loss: 0.9146 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5158 - acc: 0.7900 - val_loss: 0.9498 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5088 - acc: 0.7900 - val_loss: 0.8780 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5088 - acc: 0.7900 - val_loss: 0.8156 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5209 - acc: 0.7900 - val_loss: 0.9898 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5149 - acc: 0.7900 - val_loss: 0.8594 - val_acc: 0.
5000
```

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Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4982 - acc: 0.7900 - val_loss: 0.8937 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4975 - acc: 0.7900 - val_loss: 0.8547 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4905 - acc: 0.7900 - val_loss: 0.9375 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4996 - acc: 0.7900 - val_loss: 0.8352 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5031 - acc: 0.7900 - val_loss: 0.7646 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5036 - acc: 0.7900 - val_loss: 0.7987 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4806 - acc: 0.7900 - val_loss: 0.9871 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4955 - acc: 0.7900 - val_loss: 0.7558 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4925 - acc: 0.7900 - val_loss: 0.9319 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4843 - acc: 0.7900 - val_loss: 0.7722 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4878 - acc: 0.7900 - val_loss: 0.8712 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4720 - acc: 0.7900 - val_loss: 0.9252 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4799 - acc: 0.7900 - val_loss: 0.7550 - val_acc: 0.
5000
 54%|█████▍     | 52/96 [08:08<06:55,  9.44s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5734 - acc: 0.7300 - val_loss: 1.0048 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5556 - acc: 0.7900 - val_loss: 0.8033 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5062 - acc: 0.7900 - val_loss: 1.1207 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5843 - acc: 0.7900 - val_loss: 0.7861 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5084 - acc: 0.7900 - val_loss: 1.0079 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5445 - acc: 0.7900 - val_loss: 0.8504 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5078 - acc: 0.7900 - val_loss: 0.8667 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4997 - acc: 0.7900 - val_loss: 0.9629 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4712 - acc: 0.7900 - val_loss: 0.7553 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4641 - acc: 0.7850 - val_loss: 1.0089 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4121 - acc: 0.7900 - val_loss: 0.7130 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3489 - acc: 0.8400 - val_loss: 1.1688 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3575 - acc: 0.8400 - val_loss: 0.9938 - val_acc: 0.
6250
Epoch 14/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.2928 - acc: 0.8800 - val_loss: 1.0819 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2710 - acc: 0.8800 - val_loss: 0.7395 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2768 - acc: 0.8600 - val_loss: 1.2998 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2679 - acc: 0.8950 - val_loss: 1.4101 - val_acc: 0.
5625
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2341 - acc: 0.8700 - val_loss: 0.6564 - val_acc: 0.
8125
Epoch 19/30
7/7 [==============================] - 0s 38ms/step - loss: 0.2262 - acc: 0.9000 - val_loss: 0.6779 - val_acc: 0.
8125
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1693 - acc: 0.9100 - val_loss: 1.0998 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1212 - acc: 0.9450 - val_loss: 0.6842 - val_acc: 0.
8125
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1617 - acc: 0.9150 - val_loss: 0.5958 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2184 - acc: 0.9000 - val_loss: 0.8754 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1302 - acc: 0.9550 - val_loss: 1.0982 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1586 - acc: 0.9300 - val_loss: 1.0585 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1098 - acc: 0.9650 - val_loss: 1.2559 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1172 - acc: 0.9500 - val_loss: 1.1842 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1073 - acc: 0.9650 - val_loss: 1.1861 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1029 - acc: 0.9500 - val_loss: 0.8465 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0709 - acc: 0.9800 - val_loss: 1.2196 - val_acc: 0.
6875
 55%|█████     | 53/96 [08:17<06:45,  9.43s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6500 - acc: 0.6700 - val_loss: 0.7241 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5598 - acc: 0.7900 - val_loss: 0.8025 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5454 - acc: 0.7850 - val_loss: 0.8530 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5495 - acc: 0.7900 - val_loss: 0.8947 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5398 - acc: 0.7900 - val_loss: 0.9166 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5317 - acc: 0.7900 - val_loss: 0.8504 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5382 - acc: 0.7900 - val_loss: 0.8865 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5155 - acc: 0.7900 - val_loss: 0.8903 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5261 - acc: 0.7900 - val_loss: 0.9424 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5637 - acc: 0.7900 - val_loss: 0.7898 - val_acc: 0.
5000
```

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Epoch 11/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5179 - acc: 0.7900 - val_loss: 0.8597 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5274 - acc: 0.7900 - val_loss: 0.8816 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5279 - acc: 0.7900 - val_loss: 0.9467 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5266 - acc: 0.7900 - val_loss: 0.8322 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4964 - acc: 0.7900 - val_loss: 0.9320 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5128 - acc: 0.7900 - val_loss: 0.8804 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5186 - acc: 0.7900 - val_loss: 0.9018 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5081 - acc: 0.7900 - val_loss: 0.7801 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5116 - acc: 0.7900 - val_loss: 0.8824 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5235 - acc: 0.7900 - val_loss: 0.8575 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5209 - acc: 0.7900 - val_loss: 0.8510 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5097 - acc: 0.7900 - val_loss: 0.9195 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4939 - acc: 0.7900 - val_loss: 0.8898 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5077 - acc: 0.7900 - val_loss: 0.8153 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5082 - acc: 0.7900 - val_loss: 0.8438 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5103 - acc: 0.7900 - val_loss: 0.8486 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4979 - acc: 0.7900 - val_loss: 0.7942 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4960 - acc: 0.7900 - val_loss: 0.8372 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4975 - acc: 0.7900 - val_loss: 0.7954 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5037 - acc: 0.7850 - val_loss: 0.8568 - val_acc: 0.
5000
 56%|█████▌     | 54/96 [08:27<06:37,  9.47s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6063 - acc: 0.7000 - val_loss: 0.7695 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5090 - acc: 0.7900 - val_loss: 0.7359 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5139 - acc: 0.7900 - val_loss: 1.0767 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4815 - acc: 0.7900 - val_loss: 0.8223 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4189 - acc: 0.8150 - val_loss: 0.9921 - val_acc: 0.
5625
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3553 - acc: 0.8500 - val_loss: 1.1132 - val_acc: 0.
6250
Epoch 7/30
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7/7 [==============================] - 0s 35ms/step - loss: 0.3506 - acc: 0.8700 - val_loss: 1.2553 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2702 - acc: 0.8650 - val_loss: 0.9742 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.2051 - acc: 0.9300 - val_loss: 1.2922 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1921 - acc: 0.9300 - val_loss: 1.0617 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1603 - acc: 0.9300 - val_loss: 1.5307 - val_acc: 0.
5625
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1633 - acc: 0.9400 - val_loss: 1.0622 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1236 - acc: 0.9500 - val_loss: 0.4650 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1717 - acc: 0.9050 - val_loss: 0.6720 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1532 - acc: 0.9300 - val_loss: 1.0162 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0743 - acc: 0.9850 - val_loss: 1.4571 - val_acc: 0.
5625
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1095 - acc: 0.9550 - val_loss: 0.6235 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0605 - acc: 0.9900 - val_loss: 0.7774 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0407 - acc: 1.0000 - val_loss: 0.9648 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0270 - acc: 0.9950 - val_loss: 1.2831 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1058 - acc: 0.9350 - val_loss: 1.0754 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0265 - acc: 0.9950 - val_loss: 0.9896 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0186 - acc: 1.0000 - val_loss: 1.1472 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0148 - acc: 1.0000 - val_loss: 1.0388 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0117 - acc: 1.0000 - val_loss: 1.0477 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.3628 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0083 - acc: 1.0000 - val_loss: 1.1583 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0067 - acc: 1.0000 - val_loss: 1.2668 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0056 - acc: 1.0000 - val_loss: 0.9956 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0054 - acc: 1.0000 - val_loss: 1.4785 - val_acc: 0.
6250
 57%|█████▋     | 55/96 [08:36<06:26,  9.43s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.6362 - acc: 0.7150 - val_loss: 0.7729 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5382 - acc: 0.7900 - val_loss: 0.8549 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5170 - acc: 0.7900 - val_loss: 0.8688 - val_acc: 0.
```

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5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5152 - acc: 0.7900 - val_loss: 0.8752 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5229 - acc: 0.7900 - val_loss: 1.0117 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5190 - acc: 0.7900 - val_loss: 0.9577 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5189 - acc: 0.7900 - val_loss: 0.7992 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5188 - acc: 0.7900 - val_loss: 0.8699 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.8880 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5098 - acc: 0.7900 - val_loss: 0.8473 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5068 - acc: 0.7900 - val_loss: 0.8622 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5074 - acc: 0.7900 - val_loss: 0.7774 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5092 - acc: 0.7900 - val_loss: 0.8562 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4988 - acc: 0.7900 - val_loss: 0.8511 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5045 - acc: 0.7900 - val_loss: 0.7655 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5016 - acc: 0.7900 - val_loss: 0.9114 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4982 - acc: 0.7900 - val_loss: 0.8086 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5002 - acc: 0.7900 - val_loss: 0.8525 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4921 - acc: 0.7900 - val_loss: 0.9615 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4933 - acc: 0.7900 - val_loss: 0.7088 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4977 - acc: 0.7900 - val_loss: 0.9056 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4974 - acc: 0.7900 - val_loss: 0.9150 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4899 - acc: 0.7900 - val_loss: 0.8205 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4855 - acc: 0.7900 - val_loss: 0.8278 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4838 - acc: 0.7900 - val_loss: 0.8159 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4761 - acc: 0.7900 - val_loss: 0.7475 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4761 - acc: 0.7900 - val_loss: 0.9708 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4691 - acc: 0.7900 - val_loss: 1.0603 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4840 - acc: 0.7900 - val_loss: 0.8402 - val_acc: 0.
5000
Epoch 30/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4575 - acc: 0.7900 - val_loss: 1.1670 - val_acc: 0.
5000
 58%|█████▊     | 56/96 [08:46<06:17,  9.44s/it]
Epoch 1/30
7/7 [==============================] - 0s 52ms/step - loss: 0.6017 - acc: 0.7150 - val_loss: 0.7044 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5379 - acc: 0.7900 - val_loss: 0.9392 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5066 - acc: 0.7900 - val_loss: 0.7973 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4888 - acc: 0.7900 - val_loss: 0.8365 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4715 - acc: 0.7900 - val_loss: 0.6284 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4506 - acc: 0.8200 - val_loss: 0.9690 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3610 - acc: 0.8450 - val_loss: 0.6529 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3202 - acc: 0.8700 - val_loss: 0.6534 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2901 - acc: 0.8850 - val_loss: 0.6958 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2233 - acc: 0.9150 - val_loss: 1.4613 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2955 - acc: 0.8800 - val_loss: 0.8314 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1803 - acc: 0.9150 - val_loss: 0.5173 - val_acc: 0.
8125
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1922 - acc: 0.8900 - val_loss: 0.5789 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1308 - acc: 0.9550 - val_loss: 0.9217 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1029 - acc: 0.9600 - val_loss: 0.7089 - val_acc: 0.
8125
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0875 - acc: 0.9750 - val_loss: 0.6370 - val_acc: 0.
8125
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0605 - acc: 0.9900 - val_loss: 1.2533 - val_acc: 0.
5625
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0680 - acc: 0.9800 - val_loss: 1.5243 - val_acc: 0.
5625
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0647 - acc: 0.9650 - val_loss: 0.9576 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0580 - acc: 0.9800 - val_loss: 0.6550 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0523 - acc: 0.9850 - val_loss: 1.0915 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0404 - acc: 0.9900 - val_loss: 1.3128 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0655 - acc: 0.9700 - val_loss: 1.1013 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0299 - acc: 1.0000 - val_loss: 0.6290 - val_acc: 0.
8125
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0254 - acc: 0.9950 - val_loss: 1.3676 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0171 - acc: 1.0000 - val_loss: 0.7476 - val_acc: 0.
```

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8125
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0125 - acc: 1.0000 - val_loss: 1.4357 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0115 - acc: 0.9950 - val_loss: 0.7626 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0119 - acc: 1.0000 - val_loss: 1.5034 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0086 - acc: 1.0000 - val_loss: 0.8356 - val_acc: 0.
7500
 59%|█████▊    | 57/96 [08:55<06:09,  9.47s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5766 - acc: 0.7900 - val_loss: 0.9445 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5241 - acc: 0.7900 - val_loss: 0.8982 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 0.8708 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5211 - acc: 0.7900 - val_loss: 0.8845 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5132 - acc: 0.7900 - val_loss: 0.8501 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5152 - acc: 0.7900 - val_loss: 0.8959 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5017 - acc: 0.7900 - val_loss: 0.8937 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5093 - acc: 0.7900 - val_loss: 0.7852 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4922 - acc: 0.7900 - val_loss: 0.9224 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 0.7736 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5168 - acc: 0.7900 - val_loss: 0.8194 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4930 - acc: 0.7900 - val_loss: 0.9311 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4791 - acc: 0.7900 - val_loss: 0.9496 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4891 - acc: 0.7900 - val_loss: 0.8204 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4928 - acc: 0.7900 - val_loss: 0.8863 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4835 - acc: 0.7900 - val_loss: 0.7923 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4981 - acc: 0.7900 - val_loss: 0.9055 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4793 - acc: 0.7900 - val_loss: 1.0695 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4906 - acc: 0.7900 - val_loss: 0.7096 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4957 - acc: 0.7900 - val_loss: 1.0079 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4639 - acc: 0.7900 - val_loss: 0.8478 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4694 - acc: 0.7900 - val_loss: 0.8894 - val_acc: 0.
5000
```

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Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4618 - acc: 0.7900 - val_loss: 0.7548 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4593 - acc: 0.7900 - val_loss: 0.8988 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4394 - acc: 0.7900 - val_loss: 0.9640 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4420 - acc: 0.7900 - val_loss: 0.6987 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4541 - acc: 0.7900 - val_loss: 0.9559 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4249 - acc: 0.7950 - val_loss: 0.7389 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4301 - acc: 0.7900 - val_loss: 0.9069 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4191 - acc: 0.7900 - val_loss: 0.7877 - val_acc: 0.
5000
 60%|██████    | 58/96 [09:05<06:00,  9.49s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.5752 - acc: 0.7400 - val_loss: 0.8981 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5115 - acc: 0.7900 - val_loss: 0.7746 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5098 - acc: 0.7900 - val_loss: 0.8203 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.7946 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4619 - acc: 0.8150 - val_loss: 1.0666 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4109 - acc: 0.8100 - val_loss: 0.8409 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3382 - acc: 0.8700 - val_loss: 1.4159 - val_acc: 0.
5625
Epoch 8/30
7/7 [==============================] - 0s 38ms/step - loss: 0.3416 - acc: 0.8500 - val_loss: 0.9245 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2743 - acc: 0.8900 - val_loss: 0.7130 - val_acc: 0.
6875
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2419 - acc: 0.9150 - val_loss: 0.7707 - val_acc: 0.
6875
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2206 - acc: 0.9200 - val_loss: 1.4241 - val_acc: 0.
5625
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2208 - acc: 0.9000 - val_loss: 0.4815 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 39ms/step - loss: 0.2022 - acc: 0.9150 - val_loss: 0.8366 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 39ms/step - loss: 0.1382 - acc: 0.9650 - val_loss: 0.8178 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1183 - acc: 0.9550 - val_loss: 0.9046 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0834 - acc: 0.9800 - val_loss: 0.7923 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0780 - acc: 0.9750 - val_loss: 0.5653 - val_acc: 0.
8125
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1193 - acc: 0.9600 - val_loss: 1.5063 - val_acc: 0.
5625
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0843 - acc: 0.9650 - val_loss: 1.1217 - val_acc: 0.
```

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6250
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0734 - acc: 0.9900 - val_loss: 0.9358 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0561 - acc: 1.0000 - val_loss: 1.3426 - val_acc: 0.
5625
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0607 - acc: 0.9750 - val_loss: 0.5600 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0537 - acc: 0.9850 - val_loss: 0.6846 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 40ms/step - loss: 0.0437 - acc: 0.9850 - val_loss: 0.9519 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0506 - acc: 0.9900 - val_loss: 1.6985 - val_acc: 0.
5625
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0596 - acc: 0.9700 - val_loss: 0.7573 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0306 - acc: 1.0000 - val_loss: 1.3306 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0251 - acc: 0.9950 - val_loss: 1.1132 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0194 - acc: 1.0000 - val_loss: 1.5804 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0161 - acc: 1.0000 - val_loss: 1.2443 - val_acc: 0.
6875
 61%|██████    | 59/96 [09:15<05:54,  9.57s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5632 - acc: 0.7450 - val_loss: 0.8469 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5374 - acc: 0.7900 - val_loss: 0.9069 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5374 - acc: 0.7900 - val_loss: 0.7742 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5335 - acc: 0.7900 - val_loss: 0.7709 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5359 - acc: 0.7900 - val_loss: 0.9243 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5278 - acc: 0.7900 - val_loss: 0.9387 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5275 - acc: 0.7900 - val_loss: 1.1012 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5259 - acc: 0.7900 - val_loss: 0.8495 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5401 - acc: 0.7900 - val_loss: 0.8455 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5158 - acc: 0.7900 - val_loss: 0.8110 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5114 - acc: 0.7900 - val_loss: 1.0411 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 0.8616 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5001 - acc: 0.7900 - val_loss: 0.7931 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5001 - acc: 0.7900 - val_loss: 0.9676 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4940 - acc: 0.7900 - val_loss: 0.9779 - val_acc: 0.
5000
```

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Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4841 - acc: 0.7900 - val_loss: 0.8749 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5076 - acc: 0.7900 - val_loss: 0.7648 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4948 - acc: 0.7900 - val_loss: 0.6831 - val_acc: 0.
5625
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4991 - acc: 0.8000 - val_loss: 0.8417 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4939 - acc: 0.7900 - val_loss: 0.9042 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4786 - acc: 0.7900 - val_loss: 0.8909 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4819 - acc: 0.7900 - val_loss: 0.7273 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4765 - acc: 0.7900 - val_loss: 0.9710 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4790 - acc: 0.7900 - val_loss: 0.9326 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4662 - acc: 0.7900 - val_loss: 0.8159 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4494 - acc: 0.7900 - val_loss: 0.8094 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4414 - acc: 0.7900 - val_loss: 0.8010 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4436 - acc: 0.7950 - val_loss: 1.0450 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4537 - acc: 0.7850 - val_loss: 1.1513 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4474 - acc: 0.7950 - val_loss: 0.9078 - val_acc: 0.
5000
 62%|██████▏   | 60/96 [09:24<05:44,  9.58s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5657 - acc: 0.7200 - val_loss: 0.9960 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5366 - acc: 0.7900 - val_loss: 0.8134 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4797 - acc: 0.7900 - val_loss: 0.9730 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4680 - acc: 0.7900 - val_loss: 0.9320 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4215 - acc: 0.7900 - val_loss: 1.1473 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3940 - acc: 0.7900 - val_loss: 1.1629 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3734 - acc: 0.7900 - val_loss: 1.2632 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3379 - acc: 0.7900 - val_loss: 0.6904 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2986 - acc: 0.7900 - val_loss: 0.9539 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2905 - acc: 0.8550 - val_loss: 1.3443 - val_acc: 0.
5625
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2585 - acc: 0.8700 - val_loss: 0.6744 - val_acc: 0.
7500
Epoch 12/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.1960 - acc: 0.9200 - val_loss: 0.5611 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1548 - acc: 0.9400 - val_loss: 1.6057 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1898 - acc: 0.9000 - val_loss: 1.6284 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1647 - acc: 0.9100 - val_loss: 0.6634 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1047 - acc: 0.9700 - val_loss: 0.8323 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0504 - acc: 0.9950 - val_loss: 1.6793 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0743 - acc: 0.9750 - val_loss: 1.2074 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0414 - acc: 0.9850 - val_loss: 1.2408 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0352 - acc: 0.9850 - val_loss: 1.2130 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0188 - acc: 1.0000 - val_loss: 1.1368 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0153 - acc: 1.0000 - val_loss: 1.7337 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0335 - acc: 0.9850 - val_loss: 1.2782 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0201 - acc: 0.9950 - val_loss: 1.3606 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0253 - acc: 0.9950 - val_loss: 1.7730 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0154 - acc: 1.0000 - val_loss: 1.4257 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.4179 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0096 - acc: 1.0000 - val_loss: 1.5506 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0078 - acc: 1.0000 - val_loss: 1.0528 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0070 - acc: 1.0000 - val_loss: 1.4382 - val_acc: 0.
7500
 64%|██████    | 61/96 [09:34<05:36,  9.60s/it]
Epoch 1/30
7/7 [==============================] - 0s 52ms/step - loss: 0.6520 - acc: 0.6750 - val_loss: 0.7040 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5887 - acc: 0.7900 - val_loss: 0.7486 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5335 - acc: 0.7900 - val_loss: 0.8394 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5159 - acc: 0.7900 - val_loss: 0.8477 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5074 - acc: 0.7900 - val_loss: 0.8687 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5118 - acc: 0.7900 - val_loss: 0.9587 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5075 - acc: 0.7900 - val_loss: 0.8407 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5040 - acc: 0.7900 - val_loss: 0.9204 - val_acc: 0.
```

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5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4998 - acc: 0.7900 - val_loss: 0.8991 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5007 - acc: 0.7900 - val_loss: 0.9065 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5017 - acc: 0.7900 - val_loss: 0.9177 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.8696 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5061 - acc: 0.7900 - val_loss: 0.8749 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4970 - acc: 0.7900 - val_loss: 0.8936 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4979 - acc: 0.7900 - val_loss: 1.0036 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4989 - acc: 0.7900 - val_loss: 0.8519 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4894 - acc: 0.7900 - val_loss: 0.7707 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5070 - acc: 0.7900 - val_loss: 0.8912 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4896 - acc: 0.7900 - val_loss: 0.9059 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4914 - acc: 0.7900 - val_loss: 0.9124 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4940 - acc: 0.7900 - val_loss: 0.8970 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4897 - acc: 0.7900 - val_loss: 0.8538 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4713 - acc: 0.7900 - val_loss: 0.9191 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4823 - acc: 0.7900 - val_loss: 0.7745 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4887 - acc: 0.7900 - val_loss: 0.9054 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4723 - acc: 0.7900 - val_loss: 0.8747 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4814 - acc: 0.7900 - val_loss: 1.0111 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4730 - acc: 0.7900 - val_loss: 0.9175 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4700 - acc: 0.7900 - val_loss: 0.7766 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4678 - acc: 0.7900 - val_loss: 0.8295 - val_acc: 0.
5000
 65%|██████▌    | 62/96 [09:43<05:25,  9.58s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6238 - acc: 0.7350 - val_loss: 0.8445 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4984 - acc: 0.7900 - val_loss: 0.9555 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4788 - acc: 0.7900 - val_loss: 1.0695 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5076 - acc: 0.7900 - val_loss: 0.7297 - val_acc: 0.
5000
```

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Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4881 - acc: 0.7900 - val_loss: 0.9740 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4256 - acc: 0.7900 - val_loss: 0.7149 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 38ms/step - loss: 0.3981 - acc: 0.8200 - val_loss: 0.8325 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3562 - acc: 0.8350 - val_loss: 0.6209 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3271 - acc: 0.8750 - val_loss: 0.5589 - val_acc: 0.
7500
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3285 - acc: 0.8700 - val_loss: 1.8526 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3127 - acc: 0.8500 - val_loss: 0.7581 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2288 - acc: 0.9100 - val_loss: 0.9555 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2175 - acc: 0.9200 - val_loss: 1.1964 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1883 - acc: 0.9300 - val_loss: 1.2259 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1510 - acc: 0.9350 - val_loss: 1.2389 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1222 - acc: 0.9500 - val_loss: 0.7292 - val_acc: 0.
8125
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1416 - acc: 0.9450 - val_loss: 0.7658 - val_acc: 0.
8125
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1115 - acc: 0.9600 - val_loss: 1.2547 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0824 - acc: 0.9800 - val_loss: 1.2241 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0682 - acc: 0.9750 - val_loss: 0.7687 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0730 - acc: 0.9750 - val_loss: 1.7272 - val_acc: 0.
5625
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0799 - acc: 0.9700 - val_loss: 1.0209 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0628 - acc: 0.9750 - val_loss: 1.0652 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0507 - acc: 0.9850 - val_loss: 1.5666 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0425 - acc: 0.9850 - val_loss: 1.0882 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0331 - acc: 0.9900 - val_loss: 2.1531 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0366 - acc: 0.9850 - val_loss: 1.0322 - val_acc: 0.
8125
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0258 - acc: 0.9900 - val_loss: 1.1930 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0119 - acc: 1.0000 - val_loss: 1.3081 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0197 - acc: 0.9950 - val_loss: 1.1646 - val_acc: 0.
7500
 66%|██████    | 63/96 [09:53<05:16,  9.59s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.5515 - acc: 0.7900 - val_loss: 0.9864 - val_acc: 0.
```

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5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5276 - acc: 0.7900 - val_loss: 1.0166 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5317 - acc: 0.7900 - val_loss: 0.9372 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5085 - acc: 0.7900 - val_loss: 1.0175 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5120 - acc: 0.7900 - val_loss: 0.9490 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5121 - acc: 0.7900 - val_loss: 0.7151 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5135 - acc: 0.7900 - val_loss: 0.8659 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4806 - acc: 0.7900 - val_loss: 0.8385 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4961 - acc: 0.7900 - val_loss: 1.0266 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5025 - acc: 0.7900 - val_loss: 0.8650 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4871 - acc: 0.7900 - val_loss: 0.7771 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4718 - acc: 0.7900 - val_loss: 0.8586 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4883 - acc: 0.7900 - val_loss: 0.9828 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4654 - acc: 0.7900 - val_loss: 0.6889 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4963 - acc: 0.8050 - val_loss: 0.9447 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4747 - acc: 0.7900 - val_loss: 0.7971 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4703 - acc: 0.7850 - val_loss: 0.6464 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5175 - acc: 0.7750 - val_loss: 0.7940 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4691 - acc: 0.7900 - val_loss: 0.8465 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4621 - acc: 0.7900 - val_loss: 0.8375 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4409 - acc: 0.7900 - val_loss: 1.1077 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4512 - acc: 0.7900 - val_loss: 0.7889 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4368 - acc: 0.8050 - val_loss: 0.7091 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4433 - acc: 0.7950 - val_loss: 0.9156 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4279 - acc: 0.8100 - val_loss: 0.8206 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4253 - acc: 0.8150 - val_loss: 1.0057 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4379 - acc: 0.8050 - val_loss: 0.6231 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4372 - acc: 0.8300 - val_loss: 1.2260 - val_acc: 0.
```

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5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4242 - acc: 0.8150 - val_loss: 1.0256 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4015 - acc: 0.8350 - val_loss: 0.7483 - val_acc: 0.
6250
 67%|██████▋   | 64/96 [10:03<05:07,  9.60s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6085 - acc: 0.6750 - val_loss: 0.8577 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 1.0558 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5563 - acc: 0.7900 - val_loss: 0.7895 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5178 - acc: 0.7900 - val_loss: 0.9225 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5212 - acc: 0.7900 - val_loss: 0.8047 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4952 - acc: 0.7900 - val_loss: 0.9329 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4924 - acc: 0.7900 - val_loss: 0.7507 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4654 - acc: 0.7900 - val_loss: 0.8703 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4666 - acc: 0.7900 - val_loss: 1.0120 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4232 - acc: 0.8100 - val_loss: 0.7400 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3832 - acc: 0.8250 - val_loss: 0.7284 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3736 - acc: 0.8200 - val_loss: 0.7831 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3291 - acc: 0.8600 - val_loss: 0.8818 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3109 - acc: 0.8450 - val_loss: 1.1843 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2786 - acc: 0.9000 - val_loss: 1.1311 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2519 - acc: 0.8850 - val_loss: 1.5082 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3036 - acc: 0.8600 - val_loss: 0.6190 - val_acc: 0.
8125
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2168 - acc: 0.9100 - val_loss: 0.9552 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1830 - acc: 0.9400 - val_loss: 1.0159 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1705 - acc: 0.9300 - val_loss: 0.9195 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1116 - acc: 0.9700 - val_loss: 0.8070 - val_acc: 0.
8125
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1300 - acc: 0.9500 - val_loss: 1.4251 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1164 - acc: 0.9550 - val_loss: 0.7232 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0921 - acc: 0.9650 - val_loss: 1.1682 - val_acc: 0.
7500
```

```
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0761 - acc: 0.9600 - val_loss: 0.9281 - val_acc: 0.
8125
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0491 - acc: 0.9950 - val_loss: 1.3358 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0479 - acc: 0.9850 - val_loss: 1.3705 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0381 - acc: 0.9950 - val_loss: 1.5598 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0591 - acc: 0.9750 - val_loss: 0.5839 - val_acc: 0.
8125
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0762 - acc: 0.9700 - val_loss: 2.4519 - val_acc: 0.
5625
 68%|██████▊   | 65/96 [10:12<04:56,  9.58s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6274 - acc: 0.7200 - val_loss: 0.7363 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5567 - acc: 0.7850 - val_loss: 0.7793 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5331 - acc: 0.7900 - val_loss: 0.8109 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5219 - acc: 0.7900 - val_loss: 0.8604 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5481 - acc: 0.7900 - val_loss: 0.9312 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5332 - acc: 0.7900 - val_loss: 0.9550 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5160 - acc: 0.7900 - val_loss: 0.9738 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5113 - acc: 0.7900 - val_loss: 0.9009 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5307 - acc: 0.7850 - val_loss: 0.9615 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5120 - acc: 0.7900 - val_loss: 0.8103 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5269 - acc: 0.7900 - val_loss: 0.8742 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5148 - acc: 0.7900 - val_loss: 0.8371 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4973 - acc: 0.7900 - val_loss: 0.9453 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5203 - acc: 0.7900 - val_loss: 0.8963 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5397 - acc: 0.7900 - val_loss: 0.8418 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5178 - acc: 0.7900 - val_loss: 0.8917 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5129 - acc: 0.7900 - val_loss: 0.8458 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5154 - acc: 0.7900 - val_loss: 0.7365 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5215 - acc: 0.7900 - val_loss: 0.8433 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5124 - acc: 0.7900 - val_loss: 0.8467 - val_acc: 0.
5000
Epoch 21/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.5057 - acc: 0.7900 - val_loss: 0.7877 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5248 - acc: 0.7900 - val_loss: 0.7850 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5120 - acc: 0.7900 - val_loss: 0.8275 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5178 - acc: 0.7900 - val_loss: 0.8100 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4965 - acc: 0.7900 - val_loss: 0.9049 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4881 - acc: 0.7900 - val_loss: 0.9617 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5019 - acc: 0.7900 - val_loss: 0.8145 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4866 - acc: 0.7900 - val_loss: 0.9297 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4833 - acc: 0.7900 - val_loss: 0.8172 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4871 - acc: 0.7950 - val_loss: 0.9623 - val_acc: 0.
5000
 69%|██████▉   | 66/96 [10:22<04:47,  9.57s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.6656 - acc: 0.7150 - val_loss: 0.8135 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 33ms/step - loss: 0.5029 - acc: 0.7900 - val_loss: 0.9501 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5012 - acc: 0.7900 - val_loss: 0.7365 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4733 - acc: 0.7900 - val_loss: 0.9169 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4181 - acc: 0.8150 - val_loss: 0.8445 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3593 - acc: 0.8400 - val_loss: 1.0722 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2926 - acc: 0.8800 - val_loss: 0.7059 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2834 - acc: 0.8700 - val_loss: 0.6281 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2380 - acc: 0.9000 - val_loss: 0.7209 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2003 - acc: 0.9200 - val_loss: 0.5745 - val_acc: 0.
7500
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1852 - acc: 0.9300 - val_loss: 0.7039 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1308 - acc: 0.9600 - val_loss: 1.1167 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1092 - acc: 0.9650 - val_loss: 0.8924 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.1132 - acc: 0.9750 - val_loss: 1.4388 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0817 - acc: 0.9800 - val_loss: 0.9287 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0572 - acc: 0.9850 - val_loss: 0.8360 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0502 - acc: 0.9900 - val_loss: 1.2503 - val_acc: 0.
```

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6875
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0345 - acc: 0.9950 - val_loss: 0.9549 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0256 - acc: 0.9950 - val_loss: 1.3375 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0192 - acc: 1.0000 - val_loss: 1.2404 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0151 - acc: 1.0000 - val_loss: 1.3498 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0130 - acc: 1.0000 - val_loss: 1.3086 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0126 - acc: 1.0000 - val_loss: 1.0215 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0155 - acc: 1.0000 - val_loss: 1.4010 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0153 - acc: 1.0000 - val_loss: 1.0970 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0086 - acc: 1.0000 - val_loss: 1.0206 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0066 - acc: 1.0000 - val_loss: 1.2727 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0050 - acc: 1.0000 - val_loss: 1.2164 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0047 - acc: 1.0000 - val_loss: 1.4113 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0040 - acc: 1.0000 - val_loss: 1.3220 - val_acc: 0.
7500
 70%|██████▉   | 67/96 [10:31<04:36,  9.54s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5551 - acc: 0.7900 - val_loss: 0.9336 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5046 - acc: 0.7900 - val_loss: 0.8654 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5063 - acc: 0.7900 - val_loss: 0.8099 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5070 - acc: 0.7900 - val_loss: 0.8665 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5028 - acc: 0.7900 - val_loss: 0.9221 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 1.0190 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4957 - acc: 0.7900 - val_loss: 0.8550 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4938 - acc: 0.7900 - val_loss: 0.8455 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4936 - acc: 0.7900 - val_loss: 0.9190 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4893 - acc: 0.7900 - val_loss: 0.9215 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4788 - acc: 0.7900 - val_loss: 0.7390 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4910 - acc: 0.7900 - val_loss: 0.9704 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4868 - acc: 0.7900 - val_loss: 0.9012 - val_acc: 0.
5000
```

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Epoch 14/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4809 - acc: 0.7900 - val_loss: 0.8675 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4755 - acc: 0.7900 - val_loss: 0.8463 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4689 - acc: 0.7900 - val_loss: 0.7985 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4681 - acc: 0.7900 - val_loss: 0.9222 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4608 - acc: 0.7900 - val_loss: 0.8788 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4667 - acc: 0.7900 - val_loss: 0.8065 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4557 - acc: 0.7900 - val_loss: 0.9349 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4616 - acc: 0.7900 - val_loss: 0.7472 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4556 - acc: 0.7900 - val_loss: 0.7792 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4458 - acc: 0.7900 - val_loss: 0.9022 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4469 - acc: 0.7900 - val_loss: 1.0176 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4414 - acc: 0.7900 - val_loss: 0.9798 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4400 - acc: 0.7900 - val_loss: 0.7660 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4251 - acc: 0.7900 - val_loss: 0.7061 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4200 - acc: 0.7950 - val_loss: 0.7010 - val_acc: 0.
5625
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4188 - acc: 0.8000 - val_loss: 0.6584 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4110 - acc: 0.7950 - val_loss: 0.6077 - val_acc: 0.
7500
 71%|███████   | 68/96 [10:40<04:24,  9.44s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6666 - acc: 0.6300 - val_loss: 1.2612 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5645 - acc: 0.7900 - val_loss: 0.8064 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4979 - acc: 0.7900 - val_loss: 0.9428 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5004 - acc: 0.7900 - val_loss: 0.7249 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4658 - acc: 0.8150 - val_loss: 1.0603 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4468 - acc: 0.8000 - val_loss: 0.7393 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3997 - acc: 0.8150 - val_loss: 0.6671 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3057 - acc: 0.8800 - val_loss: 0.8433 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2411 - acc: 0.8900 - val_loss: 0.6931 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2023 - acc: 0.9250 - val_loss: 1.3707 - val_acc: 0.
```

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6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2477 - acc: 0.9000 - val_loss: 1.1466 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2585 - acc: 0.8800 - val_loss: 0.6217 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1806 - acc: 0.9300 - val_loss: 0.9116 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1374 - acc: 0.9600 - val_loss: 1.1807 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1351 - acc: 0.9350 - val_loss: 0.5485 - val_acc: 0.
8125
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0942 - acc: 0.9650 - val_loss: 1.4821 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1076 - acc: 0.9550 - val_loss: 0.6817 - val_acc: 0.
8125
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0832 - acc: 0.9750 - val_loss: 0.9281 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0574 - acc: 0.9900 - val_loss: 0.8624 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0418 - acc: 0.9950 - val_loss: 1.0975 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0392 - acc: 1.0000 - val_loss: 0.6533 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0312 - acc: 1.0000 - val_loss: 1.1049 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0277 - acc: 0.9950 - val_loss: 0.7284 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0192 - acc: 1.0000 - val_loss: 1.2062 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0197 - acc: 1.0000 - val_loss: 0.8381 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0149 - acc: 1.0000 - val_loss: 1.1845 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0114 - acc: 1.0000 - val_loss: 0.9904 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0087 - acc: 1.0000 - val_loss: 1.2581 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0129 - acc: 1.0000 - val_loss: 0.8540 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0096 - acc: 1.0000 - val_loss: 1.3198 - val_acc: 0.
7500
 72%|███████▏    | 69/96 [10:50<04:15,  9.47s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6331 - acc: 0.6950 - val_loss: 0.7427 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5353 - acc: 0.7900 - val_loss: 0.8853 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5124 - acc: 0.7900 - val_loss: 0.8640 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5109 - acc: 0.7900 - val_loss: 0.9468 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5189 - acc: 0.7900 - val_loss: 0.9512 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5045 - acc: 0.7900 - val_loss: 0.8748 - val_acc: 0.
5000
```

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Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5182 - acc: 0.7900 - val_loss: 0.9063 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4995 - acc: 0.7900 - val_loss: 0.8603 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4954 - acc: 0.7900 - val_loss: 0.8984 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4987 - acc: 0.7900 - val_loss: 0.8349 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5057 - acc: 0.7900 - val_loss: 0.9452 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5036 - acc: 0.7900 - val_loss: 0.9836 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4897 - acc: 0.7900 - val_loss: 0.8854 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4917 - acc: 0.7900 - val_loss: 0.8916 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4834 - acc: 0.7900 - val_loss: 0.9411 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4889 - acc: 0.7900 - val_loss: 0.8210 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4821 - acc: 0.7900 - val_loss: 0.7880 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4813 - acc: 0.7900 - val_loss: 0.8244 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4803 - acc: 0.7900 - val_loss: 0.8100 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4674 - acc: 0.7900 - val_loss: 0.8709 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4773 - acc: 0.7900 - val_loss: 0.7805 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4713 - acc: 0.7900 - val_loss: 0.9003 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4643 - acc: 0.7900 - val_loss: 0.9213 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4696 - acc: 0.7900 - val_loss: 0.8544 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4515 - acc: 0.7900 - val_loss: 0.7702 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4602 - acc: 0.7900 - val_loss: 0.7285 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4589 - acc: 0.7900 - val_loss: 0.9140 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4411 - acc: 0.7900 - val_loss: 0.7836 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4448 - acc: 0.7900 - val_loss: 0.7127 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4393 - acc: 0.7900 - val_loss: 0.6662 - val_acc: 0.
6250
 73%|███████▎   | 70/96 [11:00<04:06,  9.48s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.6021 - acc: 0.7600 - val_loss: 0.8807 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4610 - acc: 0.7900 - val_loss: 0.7608 - val_acc: 0.
5000
Epoch 3/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4794 - acc: 0.8250 - val_loss: 1.1678 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4397 - acc: 0.8600 - val_loss: 1.2225 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4128 - acc: 0.8400 - val_loss: 0.6926 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3253 - acc: 0.8800 - val_loss: 0.6610 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2543 - acc: 0.8950 - val_loss: 0.8560 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2050 - acc: 0.9200 - val_loss: 0.7959 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1930 - acc: 0.9150 - val_loss: 2.0044 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3282 - acc: 0.8650 - val_loss: 0.5363 - val_acc: 0.
7500
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2589 - acc: 0.8850 - val_loss: 0.5464 - val_acc: 0.
8125
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1312 - acc: 0.9600 - val_loss: 1.5209 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2014 - acc: 0.9200 - val_loss: 0.7467 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1728 - acc: 0.9250 - val_loss: 0.5096 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1148 - acc: 0.9650 - val_loss: 1.3244 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0935 - acc: 0.9700 - val_loss: 0.5225 - val_acc: 0.
8125
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0783 - acc: 0.9800 - val_loss: 0.9072 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0479 - acc: 0.9950 - val_loss: 0.6484 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0403 - acc: 0.9950 - val_loss: 0.9855 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0388 - acc: 0.9950 - val_loss: 0.5279 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0383 - acc: 0.9900 - val_loss: 1.6574 - val_acc: 0.
5625
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0399 - acc: 0.9850 - val_loss: 0.6277 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0305 - acc: 0.9950 - val_loss: 1.1752 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0273 - acc: 0.9950 - val_loss: 0.9162 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0168 - acc: 0.9950 - val_loss: 1.0051 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0141 - acc: 1.0000 - val_loss: 1.2621 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0094 - acc: 1.0000 - val_loss: 1.0425 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0082 - acc: 1.0000 - val_loss: 1.0840 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0064 - acc: 1.0000 - val_loss: 1.2305 - val_acc: 0.
7500
Epoch 30/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.0064 - acc: 1.0000 - val_loss: 1.2420 - val_acc: 0.
7500
 74%|███████▍   | 71/96 [11:09<03:57,  9.50s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.5485 - acc: 0.7650 - val_loss: 0.8362 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5148 - acc: 0.7900 - val_loss: 0.9125 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5042 - acc: 0.7900 - val_loss: 0.9681 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.8803 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5060 - acc: 0.7900 - val_loss: 0.8341 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4997 - acc: 0.7900 - val_loss: 0.7760 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5052 - acc: 0.7900 - val_loss: 1.0689 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5153 - acc: 0.7900 - val_loss: 1.0717 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5061 - acc: 0.7900 - val_loss: 0.8826 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4906 - acc: 0.7900 - val_loss: 0.9251 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4771 - acc: 0.7900 - val_loss: 0.7570 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4681 - acc: 0.7900 - val_loss: 0.8747 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4791 - acc: 0.7900 - val_loss: 0.8023 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4694 - acc: 0.7900 - val_loss: 0.9070 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4659 - acc: 0.7900 - val_loss: 0.9115 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4508 - acc: 0.7900 - val_loss: 0.6874 - val_acc: 0.
5625
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4493 - acc: 0.8050 - val_loss: 0.6542 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4616 - acc: 0.8150 - val_loss: 0.7427 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4341 - acc: 0.7900 - val_loss: 0.8403 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4519 - acc: 0.7950 - val_loss: 0.8306 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4249 - acc: 0.8100 - val_loss: 1.1551 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4422 - acc: 0.7900 - val_loss: 0.8499 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4291 - acc: 0.8050 - val_loss: 0.8612 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4044 - acc: 0.8200 - val_loss: 1.1682 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4089 - acc: 0.8050 - val_loss: 1.0428 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4119 - acc: 0.7950 - val_loss: 0.7106 - val_acc: 0.
```

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6250
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3844 - acc: 0.8500 - val_loss: 1.0161 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3963 - acc: 0.8100 - val_loss: 0.6648 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3766 - acc: 0.8200 - val_loss: 0.6205 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4130 - acc: 0.8150 - val_loss: 0.7703 - val_acc: 0.
6250
 75%|███████   | 72/96 [11:18<03:47,  9.48s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5478 - acc: 0.7900 - val_loss: 0.7747 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5038 - acc: 0.7900 - val_loss: 1.0813 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4842 - acc: 0.7900 - val_loss: 0.7918 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4053 - acc: 0.8000 - val_loss: 1.2301 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3658 - acc: 0.8400 - val_loss: 0.9215 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2978 - acc: 0.8600 - val_loss: 0.8503 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2601 - acc: 0.8900 - val_loss: 0.8848 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2619 - acc: 0.8850 - val_loss: 0.5877 - val_acc: 0.
7500
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4218 - acc: 0.7850 - val_loss: 1.2040 - val_acc: 0.
5625
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2507 - acc: 0.9150 - val_loss: 0.8105 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1972 - acc: 0.9350 - val_loss: 0.9476 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2092 - acc: 0.9350 - val_loss: 1.2442 - val_acc: 0.
5625
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1677 - acc: 0.9350 - val_loss: 0.7317 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1230 - acc: 0.9600 - val_loss: 1.3684 - val_acc: 0.
5625
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1161 - acc: 0.9450 - val_loss: 0.8980 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0915 - acc: 0.9750 - val_loss: 0.7913 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1086 - acc: 0.9750 - val_loss: 1.5142 - val_acc: 0.
6250
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0928 - acc: 0.9550 - val_loss: 1.4311 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1327 - acc: 0.9450 - val_loss: 0.7183 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0712 - acc: 0.9900 - val_loss: 1.7044 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0556 - acc: 0.9850 - val_loss: 0.7710 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0490 - acc: 0.9900 - val_loss: 2.1561 - val_acc: 0.
5625
Epoch 23/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.0733 - acc: 0.9800 - val_loss: 1.0238 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0435 - acc: 0.9950 - val_loss: 1.9457 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0433 - acc: 0.9900 - val_loss: 0.9305 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0288 - acc: 1.0000 - val_loss: 2.0396 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0281 - acc: 0.9900 - val_loss: 0.9547 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0214 - acc: 1.0000 - val_loss: 1.6856 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0344 - acc: 0.9850 - val_loss: 1.4553 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0141 - acc: 1.0000 - val_loss: 1.7374 - val_acc: 0.
6875
 76%|███████   | 73/96 [11:28<03:38,  9.50s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.6083 - acc: 0.7500 - val_loss: 0.7573 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5301 - acc: 0.7900 - val_loss: 0.8129 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5210 - acc: 0.7900 - val_loss: 0.8733 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5002 - acc: 0.7900 - val_loss: 0.9489 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5100 - acc: 0.7900 - val_loss: 0.9918 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5110 - acc: 0.7900 - val_loss: 0.8749 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5033 - acc: 0.7900 - val_loss: 0.8169 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5114 - acc: 0.7900 - val_loss: 0.8732 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5081 - acc: 0.7900 - val_loss: 0.8250 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4969 - acc: 0.7900 - val_loss: 0.8199 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5017 - acc: 0.7900 - val_loss: 0.8940 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4960 - acc: 0.7900 - val_loss: 0.9230 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4957 - acc: 0.7900 - val_loss: 0.9076 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4966 - acc: 0.7900 - val_loss: 0.8820 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4942 - acc: 0.7900 - val_loss: 0.7845 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4931 - acc: 0.7900 - val_loss: 0.7980 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4917 - acc: 0.7900 - val_loss: 0.9108 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4935 - acc: 0.7900 - val_loss: 1.0186 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4817 - acc: 0.7900 - val_loss: 0.8797 - val_acc: 0.
5000
```

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Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4795 - acc: 0.7900 - val_loss: 0.8645 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4766 - acc: 0.7900 - val_loss: 0.9213 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4809 - acc: 0.7900 - val_loss: 0.9771 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4771 - acc: 0.7900 - val_loss: 0.8718 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4726 - acc: 0.7900 - val_loss: 0.9085 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4626 - acc: 0.7900 - val_loss: 0.8583 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4614 - acc: 0.7900 - val_loss: 0.7729 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4710 - acc: 0.7900 - val_loss: 0.7171 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4740 - acc: 0.7900 - val_loss: 0.7106 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4671 - acc: 0.7900 - val_loss: 0.7250 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4594 - acc: 0.7900 - val_loss: 0.8838 - val_acc: 0.
5000
 77%|███████▋   | 74/96 [11:38<03:29,  9.54s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5571 - acc: 0.7650 - val_loss: 0.8972 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5348 - acc: 0.7900 - val_loss: 0.7803 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5285 - acc: 0.7900 - val_loss: 0.7852 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5240 - acc: 0.7900 - val_loss: 0.8647 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4912 - acc: 0.7900 - val_loss: 1.0318 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4416 - acc: 0.7900 - val_loss: 0.7949 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4066 - acc: 0.8200 - val_loss: 0.9139 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3811 - acc: 0.8350 - val_loss: 0.8479 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3361 - acc: 0.8450 - val_loss: 0.5781 - val_acc: 0.
7500
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3336 - acc: 0.8550 - val_loss: 0.6591 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2509 - acc: 0.8750 - val_loss: 1.0214 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2391 - acc: 0.9150 - val_loss: 0.7053 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2324 - acc: 0.9150 - val_loss: 1.6405 - val_acc: 0.
5625
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2099 - acc: 0.9000 - val_loss: 0.6392 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2035 - acc: 0.8950 - val_loss: 1.0664 - val_acc: 0.
6875
Epoch 16/30
```

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7/7 [==============================] - 0s 37ms/step - loss: 0.1386 - acc: 0.9500 - val_loss: 0.9750 - val_acc: 0.
6875
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1156 - acc: 0.9600 - val_loss: 0.9661 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1016 - acc: 0.9600 - val_loss: 1.2190 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0746 - acc: 0.9700 - val_loss: 1.2776 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0803 - acc: 0.9550 - val_loss: 1.4003 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0795 - acc: 0.9700 - val_loss: 1.6371 - val_acc: 0.
5625
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0629 - acc: 0.9800 - val_loss: 0.6625 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0590 - acc: 0.9700 - val_loss: 1.5516 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0285 - acc: 1.0000 - val_loss: 1.3551 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0368 - acc: 1.0000 - val_loss: 1.2964 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0205 - acc: 1.0000 - val_loss: 2.4045 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0297 - acc: 0.9850 - val_loss: 0.9816 - val_acc: 0.
8125
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0318 - acc: 0.9900 - val_loss: 1.6804 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0293 - acc: 1.0000 - val_loss: 2.0800 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0211 - acc: 1.0000 - val_loss: 1.3120 - val_acc: 0.
7500
 78%|███████▊  | 75/96 [11:47<03:21,  9.59s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5613 - acc: 0.7900 - val_loss: 0.8281 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5381 - acc: 0.7900 - val_loss: 0.9211 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5306 - acc: 0.7900 - val_loss: 0.8934 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5201 - acc: 0.7900 - val_loss: 0.9520 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5129 - acc: 0.7900 - val_loss: 0.9278 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5235 - acc: 0.7900 - val_loss: 0.9273 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5100 - acc: 0.7900 - val_loss: 0.9577 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5283 - acc: 0.7900 - val_loss: 0.9175 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5080 - acc: 0.7900 - val_loss: 0.9317 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5254 - acc: 0.7900 - val_loss: 0.8777 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5058 - acc: 0.7900 - val_loss: 0.9111 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5115 - acc: 0.7900 - val_loss: 0.9123 - val_acc: 0.
```

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5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4975 - acc: 0.7900 - val_loss: 1.0049 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5000 - acc: 0.7900 - val_loss: 0.8959 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4960 - acc: 0.7900 - val_loss: 0.8690 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4912 - acc: 0.7900 - val_loss: 0.8233 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4859 - acc: 0.7900 - val_loss: 0.8758 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4988 - acc: 0.7900 - val_loss: 0.7710 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4936 - acc: 0.7900 - val_loss: 0.9775 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4953 - acc: 0.7900 - val_loss: 0.8709 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4845 - acc: 0.7900 - val_loss: 0.8916 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4727 - acc: 0.7900 - val_loss: 0.8828 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4789 - acc: 0.7900 - val_loss: 1.0213 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4958 - acc: 0.7900 - val_loss: 0.9531 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4765 - acc: 0.7900 - val_loss: 0.8266 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4673 - acc: 0.7900 - val_loss: 0.8407 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4776 - acc: 0.7900 - val_loss: 1.0545 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4932 - acc: 0.7900 - val_loss: 0.7973 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4744 - acc: 0.7900 - val_loss: 0.8806 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4672 - acc: 0.7900 - val_loss: 0.7494 - val_acc: 0.
5000
 79%|███████▉  | 76/96 [11:57<03:12,  9.61s/it]
Epoch 1/30
7/7 [==============================] - 0s 52ms/step - loss: 0.5458 - acc: 0.7800 - val_loss: 0.8244 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5452 - acc: 0.7700 - val_loss: 0.7829 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5599 - acc: 0.7700 - val_loss: 0.8996 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5390 - acc: 0.7900 - val_loss: 0.8109 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5395 - acc: 0.7900 - val_loss: 0.8808 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5102 - acc: 0.7900 - val_loss: 0.8258 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5025 - acc: 0.7850 - val_loss: 0.8717 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4714 - acc: 0.7900 - val_loss: 0.9291 - val_acc: 0.
5000
```

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Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4386 - acc: 0.7950 - val_loss: 0.7050 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4198 - acc: 0.8250 - val_loss: 0.8445 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3421 - acc: 0.8550 - val_loss: 0.9435 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3457 - acc: 0.8450 - val_loss: 1.0147 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3059 - acc: 0.8900 - val_loss: 0.8657 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2650 - acc: 0.8900 - val_loss: 0.7879 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2562 - acc: 0.8800 - val_loss: 1.2001 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2084 - acc: 0.9150 - val_loss: 1.2661 - val_acc: 0.
5625
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1743 - acc: 0.9250 - val_loss: 0.9074 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1787 - acc: 0.9100 - val_loss: 0.8723 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1775 - acc: 0.9250 - val_loss: 1.1483 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1455 - acc: 0.9200 - val_loss: 1.5400 - val_acc: 0.
5625
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1464 - acc: 0.9250 - val_loss: 1.1737 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1056 - acc: 0.9450 - val_loss: 1.5164 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1491 - acc: 0.9250 - val_loss: 0.7000 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1713 - acc: 0.9250 - val_loss: 1.9605 - val_acc: 0.
5625
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1027 - acc: 0.9600 - val_loss: 1.0424 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0829 - acc: 0.9650 - val_loss: 1.6719 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0942 - acc: 0.9750 - val_loss: 1.3704 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0837 - acc: 0.9650 - val_loss: 1.9298 - val_acc: 0.
5625
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0607 - acc: 0.9850 - val_loss: 2.1540 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1111 - acc: 0.9600 - val_loss: 0.9185 - val_acc: 0.
7500
 80%|████████  | 77/96 [12:07<03:03,  9.66s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6108 - acc: 0.7250 - val_loss: 0.7716 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5395 - acc: 0.7900 - val_loss: 0.8258 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5311 - acc: 0.7900 - val_loss: 0.9268 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5406 - acc: 0.7900 - val_loss: 0.8676 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5441 - acc: 0.7900 - val_loss: 0.8905 - val_acc: 0.
```

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5000
Epoch 6/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5275 - acc: 0.7900 - val_loss: 0.8885 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5326 - acc: 0.7900 - val_loss: 0.8811 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 39ms/step - loss: 0.5268 - acc: 0.7900 - val_loss: 0.8787 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 39ms/step - loss: 0.5314 - acc: 0.7900 - val_loss: 0.8628 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 39ms/step - loss: 0.5391 - acc: 0.7900 - val_loss: 0.8288 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5178 - acc: 0.7900 - val_loss: 0.9172 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5315 - acc: 0.7900 - val_loss: 0.8700 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5273 - acc: 0.7900 - val_loss: 0.8942 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5493 - acc: 0.7900 - val_loss: 0.7528 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5332 - acc: 0.7900 - val_loss: 0.8311 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5178 - acc: 0.7900 - val_loss: 0.8277 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5236 - acc: 0.7900 - val_loss: 0.9014 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5162 - acc: 0.7900 - val_loss: 0.8000 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5256 - acc: 0.7900 - val_loss: 0.8801 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5357 - acc: 0.7900 - val_loss: 0.9146 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5082 - acc: 0.7900 - val_loss: 0.8593 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 39ms/step - loss: 0.4846 - acc: 0.7950 - val_loss: 0.8325 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4960 - acc: 0.7900 - val_loss: 0.8868 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5028 - acc: 0.7900 - val_loss: 0.9057 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4959 - acc: 0.7900 - val_loss: 0.9948 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4908 - acc: 0.7900 - val_loss: 0.8931 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4878 - acc: 0.7900 - val_loss: 0.9245 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.8621 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4875 - acc: 0.7900 - val_loss: 0.9272 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5048 - acc: 0.7900 - val_loss: 0.7469 - val_acc: 0.
5000
 81%|████████   | 78/96 [12:17<02:55,  9.73s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.5918 - acc: 0.6800 - val_loss: 1.0687 - val_acc: 0.
5000
```

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Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5090 - acc: 0.7900 - val_loss: 0.6896 - val_acc: 0.
6250
Epoch 3/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4925 - acc: 0.8000 - val_loss: 0.9500 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4524 - acc: 0.8150 - val_loss: 1.3434 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4414 - acc: 0.8200 - val_loss: 0.7959 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4058 - acc: 0.8100 - val_loss: 0.6555 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3487 - acc: 0.8450 - val_loss: 0.7798 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2725 - acc: 0.8900 - val_loss: 1.0755 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2258 - acc: 0.9100 - val_loss: 0.6929 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2051 - acc: 0.9300 - val_loss: 1.0802 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1875 - acc: 0.9150 - val_loss: 0.9131 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1312 - acc: 0.9600 - val_loss: 1.1106 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1084 - acc: 0.9600 - val_loss: 0.8494 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0838 - acc: 0.9700 - val_loss: 0.8218 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0675 - acc: 0.9850 - val_loss: 1.1545 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0526 - acc: 0.9950 - val_loss: 1.0318 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0378 - acc: 1.0000 - val_loss: 0.9303 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0334 - acc: 1.0000 - val_loss: 0.8288 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0264 - acc: 1.0000 - val_loss: 1.1165 - val_acc: 0.
6250
Epoch 20/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0225 - acc: 1.0000 - val_loss: 1.3865 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0180 - acc: 1.0000 - val_loss: 1.2019 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0138 - acc: 1.0000 - val_loss: 1.1373 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0127 - acc: 1.0000 - val_loss: 1.2908 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0091 - acc: 1.0000 - val_loss: 0.8044 - val_acc: 0.
8125
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0168 - acc: 1.0000 - val_loss: 0.7123 - val_acc: 0.
8125
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0112 - acc: 1.0000 - val_loss: 2.2003 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 34ms/step - loss: 0.0333 - acc: 0.9900 - val_loss: 2.5808 - val_acc: 0.
5625
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0310 - acc: 0.9850 - val_loss: 1.0298 - val_acc: 0.
6875
```

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Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0168 - acc: 1.0000 - val_loss: 0.5358 - val_acc: 0.
8750
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0216 - acc: 0.9950 - val_loss: 1.8473 - val_acc: 0.
6250
 82%|████████   | 79/96 [12:26<02:44,  9.66s/it]
Epoch 1/30
7/7 [==============================] - 0s 47ms/step - loss: 0.6001 - acc: 0.6950 - val_loss: 0.8043 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5173 - acc: 0.7900 - val_loss: 0.9159 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5154 - acc: 0.7900 - val_loss: 1.0318 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5103 - acc: 0.7900 - val_loss: 1.0333 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5166 - acc: 0.7900 - val_loss: 0.8626 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5017 - acc: 0.7900 - val_loss: 0.9496 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5036 - acc: 0.7900 - val_loss: 0.8658 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4986 - acc: 0.7900 - val_loss: 0.9732 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4955 - acc: 0.7900 - val_loss: 0.9582 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 34ms/step - loss: 0.5094 - acc: 0.7900 - val_loss: 0.7897 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4935 - acc: 0.7900 - val_loss: 0.8255 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4921 - acc: 0.7900 - val_loss: 0.9397 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4926 - acc: 0.7900 - val_loss: 0.7703 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4815 - acc: 0.7900 - val_loss: 0.9298 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4878 - acc: 0.7900 - val_loss: 0.8490 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4867 - acc: 0.7900 - val_loss: 0.7749 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4715 - acc: 0.7900 - val_loss: 0.7534 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4741 - acc: 0.7900 - val_loss: 0.6580 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4880 - acc: 0.8050 - val_loss: 0.9575 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4634 - acc: 0.7900 - val_loss: 0.7452 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4669 - acc: 0.7900 - val_loss: 0.8069 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4610 - acc: 0.7900 - val_loss: 0.8999 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4623 - acc: 0.7900 - val_loss: 0.9075 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4490 - acc: 0.7900 - val_loss: 0.9285 - val_acc: 0.
5000
Epoch 25/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4491 - acc: 0.7950 - val_loss: 0.9448 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4553 - acc: 0.7900 - val_loss: 0.8817 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4358 - acc: 0.7900 - val_loss: 1.1329 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4528 - acc: 0.7950 - val_loss: 0.6290 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4469 - acc: 0.7900 - val_loss: 0.8325 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4206 - acc: 0.7900 - val_loss: 0.9409 - val_acc: 0.
5000
 83%|████████▎ | 80/96 [12:36<02:33,  9.57s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6644 - acc: 0.6950 - val_loss: 0.7793 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5572 - acc: 0.7900 - val_loss: 0.8287 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5217 - acc: 0.7900 - val_loss: 0.8904 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5282 - acc: 0.7900 - val_loss: 0.7698 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5392 - acc: 0.7900 - val_loss: 0.8583 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4820 - acc: 0.8050 - val_loss: 0.7357 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4263 - acc: 0.7900 - val_loss: 0.8545 - val_acc: 0.
5625
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3359 - acc: 0.8750 - val_loss: 0.6342 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 38ms/step - loss: 0.2869 - acc: 0.8800 - val_loss: 0.9275 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 38ms/step - loss: 0.2428 - acc: 0.8700 - val_loss: 1.0684 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2367 - acc: 0.9250 - val_loss: 1.1914 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1927 - acc: 0.9150 - val_loss: 1.0768 - val_acc: 0.
5625
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1682 - acc: 0.9350 - val_loss: 0.6085 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1572 - acc: 0.9350 - val_loss: 0.6678 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1130 - acc: 0.9600 - val_loss: 0.9851 - val_acc: 0.
6875
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0834 - acc: 0.9750 - val_loss: 0.9620 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0589 - acc: 0.9900 - val_loss: 1.1294 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0407 - acc: 0.9950 - val_loss: 0.9670 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0341 - acc: 1.0000 - val_loss: 1.1376 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0227 - acc: 1.0000 - val_loss: 1.0861 - val_acc: 0.
6875
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0181 - acc: 1.0000 - val_loss: 1.0832 - val_acc: 0.
```

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6875
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0146 - acc: 1.0000 - val_loss: 1.7356 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0259 - acc: 0.9900 - val_loss: 1.3290 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 39ms/step - loss: 0.0134 - acc: 1.0000 - val_loss: 1.2236 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0104 - acc: 1.0000 - val_loss: 1.3787 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0097 - acc: 1.0000 - val_loss: 1.7521 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0085 - acc: 1.0000 - val_loss: 1.2622 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0064 - acc: 1.0000 - val_loss: 1.7884 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0055 - acc: 1.0000 - val_loss: 1.2550 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0061 - acc: 1.0000 - val_loss: 1.9327 - val_acc: 0.
6875
 84%|████████  | 81/96 [12:45<02:24,  9.65s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5777 - acc: 0.7400 - val_loss: 0.9549 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5059 - acc: 0.7900 - val_loss: 0.9184 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5053 - acc: 0.7900 - val_loss: 0.9971 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4983 - acc: 0.7900 - val_loss: 0.7477 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5066 - acc: 0.7900 - val_loss: 0.9198 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4831 - acc: 0.7900 - val_loss: 0.7970 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4913 - acc: 0.7900 - val_loss: 1.0413 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4920 - acc: 0.7900 - val_loss: 0.8253 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5037 - acc: 0.7900 - val_loss: 0.7985 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4892 - acc: 0.7900 - val_loss: 0.9891 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4764 - acc: 0.7900 - val_loss: 0.8236 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4752 - acc: 0.7900 - val_loss: 0.7832 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4958 - acc: 0.7900 - val_loss: 0.9552 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4770 - acc: 0.7900 - val_loss: 0.8343 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4739 - acc: 0.7900 - val_loss: 0.7937 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4693 - acc: 0.7900 - val_loss: 0.8425 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4643 - acc: 0.7900 - val_loss: 0.7471 - val_acc: 0.
5000
```

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Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4686 - acc: 0.7900 - val_loss: 0.8946 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4578 - acc: 0.7900 - val_loss: 0.7916 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4631 - acc: 0.7900 - val_loss: 0.8178 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4574 - acc: 0.7950 - val_loss: 0.7966 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4502 - acc: 0.7900 - val_loss: 1.0802 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4520 - acc: 0.7900 - val_loss: 0.6543 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4607 - acc: 0.8000 - val_loss: 0.6896 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4415 - acc: 0.7950 - val_loss: 0.6702 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4461 - acc: 0.8000 - val_loss: 0.6912 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4349 - acc: 0.8050 - val_loss: 1.0998 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4311 - acc: 0.7900 - val_loss: 0.6539 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4276 - acc: 0.8150 - val_loss: 0.9740 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4065 - acc: 0.7950 - val_loss: 0.6298 - val_acc: 0.
6250
 85%|████████  | 82/96 [12:55<02:15,  9.65s/it]
Epoch 1/30
7/7 [==============================] - 0s 53ms/step - loss: 0.6094 - acc: 0.7050 - val_loss: 1.5495 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 38ms/step - loss: 0.6951 - acc: 0.7900 - val_loss: 0.8703 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5228 - acc: 0.7900 - val_loss: 0.7691 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4899 - acc: 0.7900 - val_loss: 0.7689 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4632 - acc: 0.8050 - val_loss: 1.0168 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 40ms/step - loss: 0.4008 - acc: 0.8150 - val_loss: 0.7092 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 38ms/step - loss: 0.3648 - acc: 0.8450 - val_loss: 0.8847 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3038 - acc: 0.8750 - val_loss: 1.3026 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3299 - acc: 0.8400 - val_loss: 1.1267 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2375 - acc: 0.9100 - val_loss: 0.8054 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1928 - acc: 0.9350 - val_loss: 0.8704 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1652 - acc: 0.9450 - val_loss: 0.6560 - val_acc: 0.
6875
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1346 - acc: 0.9400 - val_loss: 0.7372 - val_acc: 0.
6875
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1119 - acc: 0.9600 - val_loss: 0.5886 - val_acc: 0.
```

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8125
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1075 - acc: 0.9650 - val_loss: 1.3396 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1104 - acc: 0.9650 - val_loss: 1.0542 - val_acc: 0.
5625
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0754 - acc: 0.9750 - val_loss: 0.4706 - val_acc: 0.
8750
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0689 - acc: 0.9750 - val_loss: 1.0547 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0522 - acc: 1.0000 - val_loss: 0.8215 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0451 - acc: 0.9900 - val_loss: 0.4807 - val_acc: 0.
8750
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0539 - acc: 0.9850 - val_loss: 0.9600 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 39ms/step - loss: 0.0306 - acc: 1.0000 - val_loss: 1.0880 - val_acc: 0.
6875
Epoch 23/30
7/7 [==============================] - 0s 39ms/step - loss: 0.0305 - acc: 0.9950 - val_loss: 0.6910 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 41ms/step - loss: 0.0167 - acc: 1.0000 - val_loss: 0.9532 - val_acc: 0.
6875
Epoch 25/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0162 - acc: 1.0000 - val_loss: 1.0427 - val_acc: 0.
6875
Epoch 26/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0139 - acc: 1.0000 - val_loss: 1.0601 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 40ms/step - loss: 0.0096 - acc: 1.0000 - val_loss: 1.1513 - val_acc: 0.
6875
Epoch 28/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0072 - acc: 1.0000 - val_loss: 1.0204 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0086 - acc: 1.0000 - val_loss: 1.4870 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0434 - acc: 0.9850 - val_loss: 0.4748 - val_acc: 0.
8750
 86%|████████▋  | 83/96 [13:05<02:06,  9.75s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6043 - acc: 0.7350 - val_loss: 0.7978 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5349 - acc: 0.7900 - val_loss: 0.8946 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5166 - acc: 0.7900 - val_loss: 0.7898 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5236 - acc: 0.7900 - val_loss: 0.8856 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5185 - acc: 0.7900 - val_loss: 0.8912 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5053 - acc: 0.7900 - val_loss: 0.9137 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5084 - acc: 0.7900 - val_loss: 0.9940 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5025 - acc: 0.7900 - val_loss: 0.8757 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5069 - acc: 0.7900 - val_loss: 0.9152 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4935 - acc: 0.7900 - val_loss: 0.8158 - val_acc: 0.
5000
```

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Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5012 - acc: 0.7900 - val_loss: 0.8664 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5026 - acc: 0.7900 - val_loss: 0.8911 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5154 - acc: 0.7900 - val_loss: 0.9187 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5027 - acc: 0.7900 - val_loss: 0.8786 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4869 - acc: 0.7900 - val_loss: 0.9962 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5112 - acc: 0.7900 - val_loss: 0.8463 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4875 - acc: 0.7900 - val_loss: 0.9462 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4872 - acc: 0.7900 - val_loss: 0.8598 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4847 - acc: 0.7900 - val_loss: 0.9160 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4735 - acc: 0.7900 - val_loss: 0.7609 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4696 - acc: 0.7900 - val_loss: 0.8367 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4625 - acc: 0.7900 - val_loss: 0.9500 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4651 - acc: 0.7900 - val_loss: 1.0283 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4910 - acc: 0.7900 - val_loss: 0.8131 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4647 - acc: 0.7900 - val_loss: 0.8582 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4566 - acc: 0.7900 - val_loss: 0.8550 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 40ms/step - loss: 0.4443 - acc: 0.7900 - val_loss: 0.9940 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4554 - acc: 0.7900 - val_loss: 0.9403 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4504 - acc: 0.7900 - val_loss: 0.6899 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4577 - acc: 0.8050 - val_loss: 0.6423 - val_acc: 0.
6250
 88%|████████▊ | 84/96 [13:15<01:56,  9.73s/it]
Epoch 1/30
7/7 [==============================] - 0s 55ms/step - loss: 0.5444 - acc: 0.7500 - val_loss: 1.3304 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5990 - acc: 0.7900 - val_loss: 0.8446 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4986 - acc: 0.7900 - val_loss: 0.7115 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4658 - acc: 0.7900 - val_loss: 1.0257 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4339 - acc: 0.8000 - val_loss: 0.8689 - val_acc: 0.
5625
Epoch 6/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3718 - acc: 0.7950 - val_loss: 0.8587 - val_acc: 0.
6250
Epoch 7/30
```

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7/7 [==============================] - 0s 39ms/step - loss: 0.3100 - acc: 0.8500 - val_loss: 0.6206 - val_acc: 0.
6875
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2624 - acc: 0.8950 - val_loss: 0.6904 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2855 - acc: 0.8600 - val_loss: 0.9574 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 39ms/step - loss: 0.2082 - acc: 0.9150 - val_loss: 1.2800 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1841 - acc: 0.9250 - val_loss: 0.9377 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1470 - acc: 0.9350 - val_loss: 0.5463 - val_acc: 0.
8125
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3042 - acc: 0.8700 - val_loss: 0.8687 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1322 - acc: 0.9550 - val_loss: 0.5680 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1194 - acc: 0.9600 - val_loss: 1.0375 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0997 - acc: 0.9600 - val_loss: 1.7332 - val_acc: 0.
6250
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0935 - acc: 0.9600 - val_loss: 0.6341 - val_acc: 0.
8125
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0890 - acc: 0.9600 - val_loss: 1.3364 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0554 - acc: 0.9800 - val_loss: 1.0157 - val_acc: 0.
7500
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0400 - acc: 0.9900 - val_loss: 0.9684 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0455 - acc: 0.9900 - val_loss: 1.4810 - val_acc: 0.
6875
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0480 - acc: 0.9750 - val_loss: 0.7951 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0371 - acc: 0.9900 - val_loss: 1.4342 - val_acc: 0.
6875
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0252 - acc: 0.9950 - val_loss: 1.1145 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0193 - acc: 1.0000 - val_loss: 1.2061 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0125 - acc: 1.0000 - val_loss: 1.5042 - val_acc: 0.
6875
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0089 - acc: 1.0000 - val_loss: 1.2208 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0094 - acc: 1.0000 - val_loss: 1.4514 - val_acc: 0.
6875
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0074 - acc: 1.0000 - val_loss: 1.4889 - val_acc: 0.
6875
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0072 - acc: 1.0000 - val_loss: 1.4476 - val_acc: 0.
6875
 89%|████████▉ | 85/96 [13:24<01:47,  9.74s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6016 - acc: 0.6850 - val_loss: 0.8047 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5148 - acc: 0.7900 - val_loss: 0.7227 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5143 - acc: 0.7900 - val_loss: 0.9836 - val_acc: 0.
```

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5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5072 - acc: 0.7900 - val_loss: 0.8818 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4877 - acc: 0.7900 - val_loss: 0.9110 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4927 - acc: 0.7900 - val_loss: 0.9318 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4911 - acc: 0.7900 - val_loss: 0.9403 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4912 - acc: 0.7900 - val_loss: 0.8744 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4774 - acc: 0.7900 - val_loss: 0.8368 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4839 - acc: 0.7900 - val_loss: 0.8477 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4726 - acc: 0.7900 - val_loss: 0.8150 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4700 - acc: 0.7900 - val_loss: 0.9349 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4634 - acc: 0.7900 - val_loss: 0.8468 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4590 - acc: 0.7900 - val_loss: 0.7946 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4517 - acc: 0.7900 - val_loss: 0.7573 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4504 - acc: 0.7900 - val_loss: 0.9152 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4452 - acc: 0.7900 - val_loss: 0.7627 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4385 - acc: 0.7900 - val_loss: 0.8017 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4294 - acc: 0.7900 - val_loss: 0.9238 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4401 - acc: 0.7950 - val_loss: 0.9186 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4198 - acc: 0.7900 - val_loss: 0.9381 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4319 - acc: 0.7900 - val_loss: 0.9278 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4244 - acc: 0.7900 - val_loss: 0.8605 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4183 - acc: 0.7950 - val_loss: 0.9040 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4118 - acc: 0.7950 - val_loss: 0.9610 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3940 - acc: 0.8050 - val_loss: 0.8277 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3894 - acc: 0.8100 - val_loss: 0.7424 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3876 - acc: 0.8200 - val_loss: 0.7451 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 39ms/step - loss: 0.3802 - acc: 0.8300 - val_loss: 1.1380 - val_acc: 0.
5000
Epoch 30/30
```

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7/7 [==============================] - 0s 37ms/step - loss: 0.4116 - acc: 0.8100 - val_loss: 0.9007 - val_acc: 0.
5625
 90%|████████▉ | 86/96 [13:34<01:37,  9.73s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.5821 - acc: 0.7350 - val_loss: 1.3314 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5163 - acc: 0.7900 - val_loss: 0.7034 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5050 - acc: 0.7900 - val_loss: 1.0627 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4743 - acc: 0.7900 - val_loss: 0.7884 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4482 - acc: 0.7900 - val_loss: 0.8099 - val_acc: 0.
5625
Epoch 6/30
7/7 [==============================] - 0s 40ms/step - loss: 0.3714 - acc: 0.8050 - val_loss: 0.7583 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 39ms/step - loss: 0.3216 - acc: 0.8550 - val_loss: 0.8431 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 38ms/step - loss: 0.2599 - acc: 0.8900 - val_loss: 1.0808 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2280 - acc: 0.9200 - val_loss: 0.9530 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2142 - acc: 0.9250 - val_loss: 1.1109 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1686 - acc: 0.9250 - val_loss: 1.1372 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1696 - acc: 0.9200 - val_loss: 1.5049 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1682 - acc: 0.9350 - val_loss: 1.1047 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0985 - acc: 0.9700 - val_loss: 1.0115 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1122 - acc: 0.9600 - val_loss: 0.8689 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0729 - acc: 0.9950 - val_loss: 1.3158 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0664 - acc: 0.9650 - val_loss: 0.9184 - val_acc: 0.
8125
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0878 - acc: 0.9600 - val_loss: 1.3136 - val_acc: 0.
6875
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0540 - acc: 0.9850 - val_loss: 0.7059 - val_acc: 0.
8125
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0546 - acc: 0.9900 - val_loss: 1.0947 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0370 - acc: 0.9900 - val_loss: 1.1957 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0253 - acc: 0.9900 - val_loss: 1.1418 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0284 - acc: 0.9900 - val_loss: 1.1303 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0147 - acc: 1.0000 - val_loss: 1.2660 - val_acc: 0.
8125
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0238 - acc: 0.9950 - val_loss: 1.1922 - val_acc: 0.
8125
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0102 - acc: 1.0000 - val_loss: 1.4555 - val_acc: 0.
```

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7500
Epoch 27/30
7/7 [==============================] - 0s 39ms/step - loss: 0.0121 - acc: 1.0000 - val_loss: 1.3942 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0104 - acc: 1.0000 - val_loss: 1.5775 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0117 - acc: 0.9950 - val_loss: 1.3245 - val_acc: 0.
8125
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0095 - acc: 1.0000 - val_loss: 2.2153 - val_acc: 0.
6875
 91%|████████ | 87/96 [13:44<01:27,  9.75s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.6364 - acc: 0.6550 - val_loss: 0.7931 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5127 - acc: 0.7900 - val_loss: 0.8784 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5056 - acc: 0.7900 - val_loss: 0.9130 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5014 - acc: 0.7900 - val_loss: 0.8488 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4904 - acc: 0.7900 - val_loss: 0.9261 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5126 - acc: 0.7900 - val_loss: 0.7561 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5189 - acc: 0.7900 - val_loss: 0.8477 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4899 - acc: 0.7900 - val_loss: 0.9373 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4923 - acc: 0.7900 - val_loss: 0.8549 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4940 - acc: 0.7900 - val_loss: 0.8110 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4797 - acc: 0.7900 - val_loss: 0.9956 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5049 - acc: 0.7900 - val_loss: 1.0062 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4909 - acc: 0.7900 - val_loss: 0.7873 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4689 - acc: 0.7900 - val_loss: 0.7595 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4843 - acc: 0.7900 - val_loss: 0.8725 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4837 - acc: 0.7900 - val_loss: 1.0369 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4745 - acc: 0.7900 - val_loss: 0.7922 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4748 - acc: 0.7900 - val_loss: 0.8118 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4651 - acc: 0.7900 - val_loss: 0.8335 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4602 - acc: 0.7900 - val_loss: 0.7461 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4621 - acc: 0.7900 - val_loss: 0.9660 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4556 - acc: 0.7900 - val_loss: 1.0051 - val_acc: 0.
5000
Epoch 23/30
```

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7/7 [==============================] - 0s 35ms/step - loss: 0.4552 - acc: 0.7900 - val_loss: 0.8236 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4688 - acc: 0.7900 - val_loss: 0.9633 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4226 - acc: 0.7900 - val_loss: 0.7947 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4446 - acc: 0.7900 - val_loss: 0.6844 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4405 - acc: 0.7950 - val_loss: 0.8049 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4236 - acc: 0.7900 - val_loss: 0.6260 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4512 - acc: 0.8150 - val_loss: 0.8237 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4089 - acc: 0.8150 - val_loss: 0.9649 - val_acc: 0.
5000
 92%|████████▏ | 88/96 [13:54<01:17,  9.69s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.6032 - acc: 0.6900 - val_loss: 0.8283 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5243 - acc: 0.7900 - val_loss: 1.0849 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5066 - acc: 0.7900 - val_loss: 0.6788 - val_acc: 0.
6250
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4578 - acc: 0.8100 - val_loss: 1.2454 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4771 - acc: 0.7950 - val_loss: 0.6473 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4318 - acc: 0.8050 - val_loss: 0.7816 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4382 - acc: 0.8450 - val_loss: 0.9734 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3616 - acc: 0.8350 - val_loss: 0.6760 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 38ms/step - loss: 0.3278 - acc: 0.8600 - val_loss: 0.7849 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2421 - acc: 0.9250 - val_loss: 1.0930 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2224 - acc: 0.9100 - val_loss: 1.3940 - val_acc: 0.
6250
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1868 - acc: 0.9300 - val_loss: 1.0116 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 39ms/step - loss: 0.1819 - acc: 0.9350 - val_loss: 1.5574 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1926 - acc: 0.9400 - val_loss: 1.7823 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1956 - acc: 0.9300 - val_loss: 0.4894 - val_acc: 0.
7500
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1803 - acc: 0.9450 - val_loss: 0.9524 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1164 - acc: 0.9550 - val_loss: 1.1222 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1609 - acc: 0.9200 - val_loss: 0.4685 - val_acc: 0.
8125
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1886 - acc: 0.9200 - val_loss: 1.1677 - val_acc: 0.
```

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6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0930 - acc: 0.9750 - val_loss: 0.6885 - val_acc: 0.
8125
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0709 - acc: 0.9750 - val_loss: 0.8520 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0600 - acc: 0.9900 - val_loss: 1.1795 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0652 - acc: 0.9750 - val_loss: 0.9692 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0338 - acc: 0.9950 - val_loss: 1.1240 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0341 - acc: 0.9950 - val_loss: 1.0912 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0255 - acc: 0.9950 - val_loss: 1.0939 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0210 - acc: 0.9950 - val_loss: 1.2707 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0234 - acc: 0.9950 - val_loss: 1.1416 - val_acc: 0.
8125
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0201 - acc: 0.9950 - val_loss: 1.5197 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0349 - acc: 0.9850 - val_loss: 1.0516 - val_acc: 0.
8125
 93%|████████▊ | 89/96 [14:03<01:07,  9.71s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.6264 - acc: 0.6650 - val_loss: 0.8938 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5456 - acc: 0.7900 - val_loss: 0.8632 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5420 - acc: 0.7900 - val_loss: 0.9330 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5537 - acc: 0.7900 - val_loss: 0.8699 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5393 - acc: 0.7900 - val_loss: 0.7895 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5245 - acc: 0.7900 - val_loss: 0.9635 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5187 - acc: 0.7900 - val_loss: 0.8297 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5109 - acc: 0.7900 - val_loss: 0.8002 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5106 - acc: 0.7900 - val_loss: 0.9146 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5046 - acc: 0.7900 - val_loss: 0.8352 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4857 - acc: 0.7900 - val_loss: 0.9476 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.5336 - acc: 0.7900 - val_loss: 0.7893 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5022 - acc: 0.7900 - val_loss: 0.8888 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4918 - acc: 0.7950 - val_loss: 0.9530 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4854 - acc: 0.7900 - val_loss: 0.8228 - val_acc: 0.
5000
```

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Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4876 - acc: 0.7850 - val_loss: 0.8557 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4788 - acc: 0.7900 - val_loss: 0.7946 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4721 - acc: 0.7900 - val_loss: 0.8829 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4804 - acc: 0.7900 - val_loss: 0.6888 - val_acc: 0.
5625
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4808 - acc: 0.7950 - val_loss: 0.8543 - val_acc: 0.
5000
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4768 - acc: 0.8000 - val_loss: 0.9512 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4857 - acc: 0.7900 - val_loss: 0.8734 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4563 - acc: 0.7900 - val_loss: 0.8436 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4640 - acc: 0.7900 - val_loss: 0.7921 - val_acc: 0.
5000
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4484 - acc: 0.7950 - val_loss: 0.9603 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4497 - acc: 0.8000 - val_loss: 0.8694 - val_acc: 0.
5000
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4510 - acc: 0.7850 - val_loss: 1.0109 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4721 - acc: 0.7800 - val_loss: 0.9586 - val_acc: 0.
5000
Epoch 29/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4293 - acc: 0.7950 - val_loss: 0.8285 - val_acc: 0.
5000
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4182 - acc: 0.8150 - val_loss: 0.9550 - val_acc: 0.
5000
 94%|█████████ | 90/96 [14:13<00:58,  9.71s/it]
Epoch 1/30
7/7 [==============================] - 0s 52ms/step - loss: 0.5697 - acc: 0.7450 - val_loss: 0.9349 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 37ms/step - loss: 0.8137 - acc: 0.6850 - val_loss: 0.7614 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4760 - acc: 0.8050 - val_loss: 0.9649 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4279 - acc: 0.8250 - val_loss: 0.8149 - val_acc: 0.
6250
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3582 - acc: 0.8050 - val_loss: 0.6808 - val_acc: 0.
6250
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3485 - acc: 0.8750 - val_loss: 1.0750 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2727 - acc: 0.9100 - val_loss: 0.6727 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2367 - acc: 0.9200 - val_loss: 1.0470 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1959 - acc: 0.9300 - val_loss: 1.3593 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.1960 - acc: 0.9100 - val_loss: 0.5993 - val_acc: 0.
7500
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1842 - acc: 0.9200 - val_loss: 0.7906 - val_acc: 0.
7500
Epoch 12/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.2156 - acc: 0.9100 - val_loss: 1.0309 - val_acc: 0.
6250
Epoch 13/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1253 - acc: 0.9700 - val_loss: 0.9953 - val_acc: 0.
6250
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1049 - acc: 0.9550 - val_loss: 0.8369 - val_acc: 0.
7500
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0761 - acc: 0.9900 - val_loss: 1.1375 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0578 - acc: 0.9950 - val_loss: 0.9947 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0434 - acc: 1.0000 - val_loss: 1.1786 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0362 - acc: 1.0000 - val_loss: 1.1561 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0283 - acc: 1.0000 - val_loss: 1.4803 - val_acc: 0.
6250
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0316 - acc: 0.9900 - val_loss: 1.1028 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0263 - acc: 0.9950 - val_loss: 1.0640 - val_acc: 0.
8125
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0551 - acc: 0.9800 - val_loss: 2.0836 - val_acc: 0.
5625
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0654 - acc: 0.9650 - val_loss: 0.8452 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0255 - acc: 1.0000 - val_loss: 1.4753 - val_acc: 0.
5625
Epoch 25/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0213 - acc: 1.0000 - val_loss: 1.1731 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0220 - acc: 0.9950 - val_loss: 1.1672 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0138 - acc: 1.0000 - val_loss: 1.6898 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0128 - acc: 1.0000 - val_loss: 1.1913 - val_acc: 0.
8125
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0126 - acc: 1.0000 - val_loss: 1.4614 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0132 - acc: 1.0000 - val_loss: 1.4109 - val_acc: 0.
7500
 95%|████████▌ | 91/96 [14:23<00:48,  9.69s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5567 - acc: 0.7900 - val_loss: 0.7256 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5330 - acc: 0.7900 - val_loss: 0.7439 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5232 - acc: 0.7900 - val_loss: 0.9706 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5165 - acc: 0.7900 - val_loss: 0.9698 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5239 - acc: 0.7900 - val_loss: 0.9617 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5041 - acc: 0.7900 - val_loss: 0.8600 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5030 - acc: 0.7900 - val_loss: 0.7945 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4956 - acc: 0.7900 - val_loss: 0.9340 - val_acc: 0.
```

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5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4829 - acc: 0.7900 - val_loss: 0.9762 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4813 - acc: 0.7900 - val_loss: 0.8869 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4741 - acc: 0.7900 - val_loss: 0.8402 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4643 - acc: 0.7900 - val_loss: 0.8377 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4651 - acc: 0.7900 - val_loss: 0.9967 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4654 - acc: 0.7900 - val_loss: 0.7036 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4579 - acc: 0.7900 - val_loss: 0.9624 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4574 - acc: 0.7900 - val_loss: 0.8329 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4470 - acc: 0.7900 - val_loss: 0.8214 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4340 - acc: 0.7900 - val_loss: 0.8365 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4356 - acc: 0.7900 - val_loss: 0.7495 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4368 - acc: 0.7950 - val_loss: 0.7108 - val_acc: 0.
6250
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4313 - acc: 0.8000 - val_loss: 0.7325 - val_acc: 0.
6250
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4218 - acc: 0.8000 - val_loss: 0.7150 - val_acc: 0.
6250
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4174 - acc: 0.8000 - val_loss: 0.9409 - val_acc: 0.
5000
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4047 - acc: 0.7950 - val_loss: 0.6259 - val_acc: 0.
6250
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4123 - acc: 0.8150 - val_loss: 0.6501 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4003 - acc: 0.8100 - val_loss: 0.7172 - val_acc: 0.
6250
Epoch 27/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4033 - acc: 0.8100 - val_loss: 0.5997 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4353 - acc: 0.7500 - val_loss: 0.8801 - val_acc: 0.
5625
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3967 - acc: 0.8000 - val_loss: 0.8177 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3758 - acc: 0.8150 - val_loss: 0.9231 - val_acc: 0.
5625
 96%|█████████▌| 92/96 [14:32<00:38,  9.63s/it]
Epoch 1/30
7/7 [==============================] - 0s 49ms/step - loss: 0.5272 - acc: 0.7850 - val_loss: 0.6453 - val_acc: 0.
6250
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4423 - acc: 0.8250 - val_loss: 0.6164 - val_acc: 0.
6250
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4035 - acc: 0.8250 - val_loss: 0.7458 - val_acc: 0.
6250
Epoch 4/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3146 - acc: 0.8450 - val_loss: 0.6373 - val_acc: 0.
6250
Epoch 5/30
```

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7/7 [==============================] - 0s 36ms/step - loss: 0.2574 - acc: 0.8800 - val_loss: 0.5891 - val_acc: 0.
7500
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2618 - acc: 0.9150 - val_loss: 1.5033 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 35ms/step - loss: 0.2640 - acc: 0.9000 - val_loss: 0.5570 - val_acc: 0.
7500
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2086 - acc: 0.9000 - val_loss: 0.6084 - val_acc: 0.
7500
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1746 - acc: 0.9200 - val_loss: 1.0652 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1243 - acc: 0.9550 - val_loss: 0.9516 - val_acc: 0.
6875
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1014 - acc: 0.9700 - val_loss: 0.6249 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0743 - acc: 0.9900 - val_loss: 0.9084 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.0511 - acc: 0.9950 - val_loss: 1.0115 - val_acc: 0.
7500
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0454 - acc: 0.9900 - val_loss: 0.5612 - val_acc: 0.
8125
Epoch 15/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0416 - acc: 0.9950 - val_loss: 1.4366 - val_acc: 0.
5625
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0461 - acc: 0.9850 - val_loss: 0.8134 - val_acc: 0.
7500
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0232 - acc: 1.0000 - val_loss: 1.0186 - val_acc: 0.
6875
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0179 - acc: 1.0000 - val_loss: 0.9044 - val_acc: 0.
7500
Epoch 19/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0144 - acc: 1.0000 - val_loss: 1.0642 - val_acc: 0.
6875
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0107 - acc: 1.0000 - val_loss: 1.0069 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.1983 - val_acc: 0.
7500
Epoch 22/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0073 - acc: 1.0000 - val_loss: 1.0551 - val_acc: 0.
7500
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0088 - acc: 1.0000 - val_loss: 1.2203 - val_acc: 0.
7500
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0073 - acc: 1.0000 - val_loss: 1.1807 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0059 - acc: 1.0000 - val_loss: 1.0408 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0053 - acc: 1.0000 - val_loss: 1.3330 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.0037 - acc: 1.0000 - val_loss: 1.1636 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0032 - acc: 1.0000 - val_loss: 1.2160 - val_acc: 0.
7500
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0039 - acc: 1.0000 - val_loss: 1.3016 - val_acc: 0.
7500
Epoch 30/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0031 - acc: 1.0000 - val_loss: 1.2999 - val_acc: 0.
7500
 97%|▉| 93/96 [14:42<00:28,  9.65s/it]
Epoch 1/30
7/7 [==============================] - 0s 51ms/step - loss: 0.6194 - acc: 0.6800 - val_loss: 0.8321 - val_acc: 0.
```

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5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5171 - acc: 0.7900 - val_loss: 0.8021 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5079 - acc: 0.7900 - val_loss: 0.8981 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4991 - acc: 0.7900 - val_loss: 1.0003 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5043 - acc: 0.7900 - val_loss: 0.9521 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4939 - acc: 0.7900 - val_loss: 0.8325 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4834 - acc: 0.7900 - val_loss: 0.8663 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4771 - acc: 0.7900 - val_loss: 0.9439 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4871 - acc: 0.7900 - val_loss: 0.9471 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4732 - acc: 0.7900 - val_loss: 0.8778 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4794 - acc: 0.7900 - val_loss: 1.0230 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4658 - acc: 0.7900 - val_loss: 0.9575 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4643 - acc: 0.7900 - val_loss: 0.6883 - val_acc: 0.
5625
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4711 - acc: 0.7950 - val_loss: 0.8932 - val_acc: 0.
5000
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4638 - acc: 0.7900 - val_loss: 0.7150 - val_acc: 0.
5000
Epoch 16/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4545 - acc: 0.7900 - val_loss: 0.8820 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4453 - acc: 0.7900 - val_loss: 0.8779 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4375 - acc: 0.7950 - val_loss: 0.9257 - val_acc: 0.
5000
Epoch 19/30
7/7 [==============================] - ETA: 0s - loss: 0.4390 - acc: 0.790 - 0s 39ms/step - loss: 0.4390 - acc:
0.7900 - val_loss: 1.0130 - val_acc: 0.5000
Epoch 20/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4246 - acc: 0.7900 - val_loss: 0.7259 - val_acc: 0.
5625
Epoch 21/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4287 - acc: 0.8000 - val_loss: 0.9508 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4374 - acc: 0.7900 - val_loss: 0.7845 - val_acc: 0.
5625
Epoch 23/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4126 - acc: 0.7950 - val_loss: 0.7122 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4280 - acc: 0.8100 - val_loss: 0.6021 - val_acc: 0.
7500
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4236 - acc: 0.8150 - val_loss: 0.9907 - val_acc: 0.
5000
Epoch 26/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4055 - acc: 0.8050 - val_loss: 0.8675 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3943 - acc: 0.8150 - val_loss: 0.9964 - val_acc: 0.
5000
Epoch 28/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4055 - acc: 0.8100 - val_loss: 0.6587 - val_acc: 0.
```

```
6250
Epoch 29/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3877 - acc: 0.8350 - val_loss: 0.7356 - val_acc: 0.
6250
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3788 - acc: 0.8400 - val_loss: 0.7770 - val_acc: 0.
6250
 98%|████████▊ | 94/96 [14:52<00:19,  9.69s/it]
Epoch 1/30
7/7 [==============================] - 0s 50ms/step - loss: 0.7972 - acc: 0.6250 - val_loss: 1.8937 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5757 - acc: 0.7600 - val_loss: 1.1879 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 36ms/step - loss: 0.5046 - acc: 0.8050 - val_loss: 0.7282 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4339 - acc: 0.7950 - val_loss: 0.8307 - val_acc: 0.
5625
Epoch 5/30
7/7 [==============================] - 0s 37ms/step - loss: 0.3852 - acc: 0.8600 - val_loss: 1.3091 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3912 - acc: 0.8550 - val_loss: 0.7473 - val_acc: 0.
6250
Epoch 7/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2882 - acc: 0.8650 - val_loss: 0.9368 - val_acc: 0.
6250
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.2866 - acc: 0.8950 - val_loss: 0.8442 - val_acc: 0.
6250
Epoch 9/30
7/7 [==============================] - 0s 36ms/step - loss: 0.2352 - acc: 0.9000 - val_loss: 0.6796 - val_acc: 0.
6250
Epoch 10/30
7/7 [==============================] - 0s 36ms/step - loss: 0.1916 - acc: 0.9250 - val_loss: 0.8382 - val_acc: 0.
6250
Epoch 11/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1774 - acc: 0.9400 - val_loss: 0.7991 - val_acc: 0.
7500
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1563 - acc: 0.9450 - val_loss: 0.7255 - val_acc: 0.
7500
Epoch 13/30
7/7 [==============================] - 0s 38ms/step - loss: 0.1294 - acc: 0.9450 - val_loss: 0.5552 - val_acc: 0.
8125
Epoch 14/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1408 - acc: 0.9400 - val_loss: 1.6169 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 40ms/step - loss: 0.1375 - acc: 0.9450 - val_loss: 0.7415 - val_acc: 0.
8125
Epoch 16/30
7/7 [==============================] - 0s 37ms/step - loss: 0.1243 - acc: 0.9300 - val_loss: 0.7177 - val_acc: 0.
8125
Epoch 17/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0851 - acc: 0.9700 - val_loss: 1.1436 - val_acc: 0.
7500
Epoch 18/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0645 - acc: 0.9900 - val_loss: 0.6540 - val_acc: 0.
8125
Epoch 19/30
7/7 [==============================] - 0s 39ms/step - loss: 0.0657 - acc: 0.9750 - val_loss: 0.8438 - val_acc: 0.
8125
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0441 - acc: 0.9950 - val_loss: 1.1151 - val_acc: 0.
7500
Epoch 21/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0467 - acc: 0.9850 - val_loss: 0.8311 - val_acc: 0.
8125
Epoch 22/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0386 - acc: 0.9900 - val_loss: 0.9209 - val_acc: 0.
8125
Epoch 23/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0282 - acc: 1.0000 - val_loss: 0.8819 - val_acc: 0.
8125
Epoch 24/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0252 - acc: 1.0000 - val_loss: 0.9162 - val_acc: 0.
7500
```

```
Epoch 25/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0259 - acc: 0.9950 - val_loss: 1.0611 - val_acc: 0.
7500
Epoch 26/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0158 - acc: 1.0000 - val_loss: 1.0626 - val_acc: 0.
7500
Epoch 27/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0140 - acc: 1.0000 - val_loss: 1.1384 - val_acc: 0.
7500
Epoch 28/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0120 - acc: 1.0000 - val_loss: 1.1234 - val_acc: 0.
8125
Epoch 29/30
7/7 [==============================] - 0s 37ms/step - loss: 0.0107 - acc: 1.0000 - val_loss: 1.1459 - val_acc: 0.
8125
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.0091 - acc: 1.0000 - val_loss: 1.3032 - val_acc: 0.
7500
 99%|█████████▉| 95/96 [15:01<00:09,  9.73s/it]
Epoch 1/30
7/7 [==============================] - 0s 48ms/step - loss: 0.5280 - acc: 0.7600 - val_loss: 0.9365 - val_acc: 0.
5000
Epoch 2/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4988 - acc: 0.7900 - val_loss: 0.9448 - val_acc: 0.
5000
Epoch 3/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5129 - acc: 0.7900 - val_loss: 0.8306 - val_acc: 0.
5000
Epoch 4/30
7/7 [==============================] - 0s 37ms/step - loss: 0.5196 - acc: 0.7900 - val_loss: 0.8084 - val_acc: 0.
5000
Epoch 5/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4831 - acc: 0.7850 - val_loss: 0.9954 - val_acc: 0.
5000
Epoch 6/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4913 - acc: 0.7900 - val_loss: 0.8217 - val_acc: 0.
5000
Epoch 7/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4822 - acc: 0.7900 - val_loss: 0.8112 - val_acc: 0.
5000
Epoch 8/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4866 - acc: 0.7900 - val_loss: 0.8092 - val_acc: 0.
5000
Epoch 9/30
7/7 [==============================] - 0s 35ms/step - loss: 0.5012 - acc: 0.7950 - val_loss: 0.8470 - val_acc: 0.
5000
Epoch 10/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4750 - acc: 0.7900 - val_loss: 0.7683 - val_acc: 0.
5000
Epoch 11/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4667 - acc: 0.7900 - val_loss: 0.9156 - val_acc: 0.
5000
Epoch 12/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4843 - acc: 0.7900 - val_loss: 0.8787 - val_acc: 0.
5000
Epoch 13/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4678 - acc: 0.7900 - val_loss: 0.9203 - val_acc: 0.
5000
Epoch 14/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4555 - acc: 0.7900 - val_loss: 0.6937 - val_acc: 0.
6250
Epoch 15/30
7/7 [==============================] - 0s 37ms/step - loss: 0.4715 - acc: 0.8000 - val_loss: 0.6606 - val_acc: 0.
6250
Epoch 16/30
7/7 [==============================] - 0s 38ms/step - loss: 0.4565 - acc: 0.8100 - val_loss: 1.0810 - val_acc: 0.
5000
Epoch 17/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4507 - acc: 0.7950 - val_loss: 0.9962 - val_acc: 0.
5000
Epoch 18/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4385 - acc: 0.7900 - val_loss: 0.6408 - val_acc: 0.
6250
Epoch 19/30
7/7 [==============================] - 0s 34ms/step - loss: 0.4744 - acc: 0.7850 - val_loss: 0.8361 - val_acc: 0.
5000
Epoch 20/30
7/7 [==============================] - 0s 36ms/step - loss: 0.4182 - acc: 0.7900 - val_loss: 0.8786 - val_acc: 0.
5000
Epoch 21/30
```

```
7/7 [==============================] - 0s 36ms/step - loss: 0.4372 - acc: 0.7950 - val_loss: 0.8370 - val_acc: 0.
5000
Epoch 22/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4199 - acc: 0.8050 - val_loss: 1.1309 - val_acc: 0.
5000
Epoch 23/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4181 - acc: 0.7950 - val_loss: 0.6516 - val_acc: 0.
6250
Epoch 24/30
7/7 [==============================] - 0s 35ms/step - loss: 0.4265 - acc: 0.8050 - val_loss: 0.8414 - val_acc: 0.
5625
Epoch 25/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3915 - acc: 0.8100 - val_loss: 0.8136 - val_acc: 0.
6250
Epoch 26/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3997 - acc: 0.8150 - val_loss: 0.8935 - val_acc: 0.
5625
Epoch 27/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3910 - acc: 0.8100 - val_loss: 0.8899 - val_acc: 0.
6250
Epoch 28/30
7/7 [==============================] - 0s 35ms/step - loss: 0.3756 - acc: 0.8250 - val_loss: 0.6167 - val_acc: 0.
6250
Epoch 29/30
7/7 [==============================] - 0s 34ms/step - loss: 0.3878 - acc: 0.8200 - val_loss: 1.0084 - val_acc: 0.
5625
Epoch 30/30
7/7 [==============================] - 0s 36ms/step - loss: 0.3741 - acc: 0.8150 - val_loss: 0.9116 - val_acc: 0.
6250
100%|██████████| 96/96 [15:11<00:00,  9.49s/it]
```

In [105…
```
df = pd.read_csv("C:\\Users\\rychu\\Desktop\\2021\\FLT\\P4-Project\\grid\\120721200248.csv")
```

In [106…
```
df
```

Out[106…

	round_epochs	loss	acc	val_loss	val_acc	activation1	activation2	activation3	activation4	dropout	optimizer
0	30	0.019468	1.000	0.934971	0.7500	relu	relu	relu	relu	0.1	adam
1	30	0.478942	0.790	0.774486	0.5000	relu	relu	relu	relu	0.1	sgd
2	30	0.103291	0.955	1.197256	0.6875	relu	relu	relu	relu	0.3	adam
3	30	0.498366	0.790	0.828341	0.5000	relu	relu	relu	relu	0.3	sgd
4	30	0.067965	0.980	1.944821	0.6250	relu	relu	relu	relu	0.5	adam
...	...	...	...	...	...	...	...	...	...	...	...
91	30	0.375804	0.815	0.923096	0.5625	tanh	tanh	tanh	tanh	0.1	sgd
92	30	0.003051	1.000	1.299934	0.7500	tanh	tanh	tanh	tanh	0.3	adam
93	30	0.378837	0.840	0.776982	0.6250	tanh	tanh	tanh	tanh	0.3	sgd
94	30	0.009124	1.000	1.303209	0.7500	tanh	tanh	tanh	tanh	0.5	adam
95	30	0.374089	0.815	0.911615	0.6250	tanh	tanh	tanh	tanh	0.5	sgd

96 rows × 11 columns

In [107…
```
df.sort_values('val_acc', ascending=False)
```

Out[107…

	round_epochs	loss	acc	val_loss	val_acc	activation1	activation2	activation3	activation4	dropout	optimizer
40	30	0.036979	1.000	0.549859	0.8750	relu	tanh	tanh	relu	0.5	adam
82	30	0.043440	0.985	0.474787	0.8750	tanh	tanh	relu	tanh	0.5	adam
38	30	0.060556	0.980	0.675372	0.8125	relu	tanh	tanh	relu	0.3	adam
88	30	0.034934	0.985	1.051622	0.8125	tanh	tanh	tanh	relu	0.5	adam
0	30	0.019468	1.000	0.934971	0.7500	relu	relu	relu	relu	0.1	adam
...	...	...	...	...	...	...	...	...	...	...	...
61	30	0.467759	0.790	0.829460	0.5000	tanh	relu	tanh	relu	0.1	sgd
21	30	0.422753	0.805	0.992662	0.5000	relu	relu	tanh	tanh	0.3	sgd

	round_epochs	loss	acc	val_loss	val_acc	activation1	activation2	activation3	activation4	dropout	optimizer
35	30	0.439714	0.795	1.014888	0.5000	relu	tanh	relu	tanh	0.5	sgd
19	30	0.415425	0.790	1.186448	0.5000	relu	relu	tanh	tanh	0.1	sgd
65	30	0.487131	0.795	0.962331	0.5000	tanh	relu	tanh	relu	0.5	sgd

96 rows × 11 columns

In [85]:
```
# Make note of most accurate model with respect to val_acc and training acc
```

Final Model

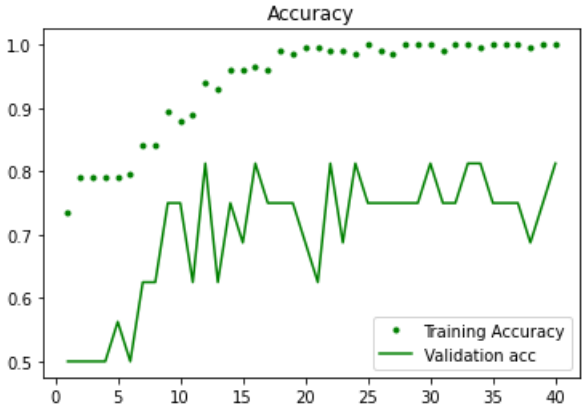
In [108…
```
model = models.Sequential()

# hidden layers
model.add(layers.Conv2D(32, (3, 3), activation='relu', input_shape=(64 ,64,  3)))
model.add(layers.MaxPooling2D((2, 2)))

model.add(layers.Conv2D(32, (4, 4), activation='tanh'))
model.add(layers.MaxPooling2D((2, 2)))

model.add(layers.Conv2D(64, (3, 3), activation='tanh'))
model.add(layers.MaxPooling2D((2, 2)))

model.add(layers.Flatten())

model.add(layers.Dense(64, activation='relu'))
model.add(layers.Dropout(0.5))

# output layer
model.add(layers.Dense(1, activation='sigmoid'))

model.compile(loss='binary_crossentropy',
              optimizer='adam',
              metrics=['acc'])

history = model.fit(train_images,
                        train_y,
                        epochs=40,
                        batch_size=32,
                        validation_data=(val_images, val_y))
```

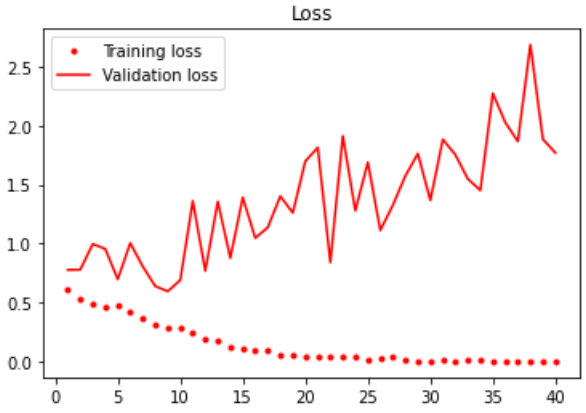
```
Epoch 1/40
7/7 [==============================] - 0s 46ms/step - loss: 0.6082 - acc: 0.7350 - val_loss: 0.7783 - val_acc: 0.
5000
Epoch 2/40
7/7 [==============================] - 0s 35ms/step - loss: 0.5321 - acc: 0.7900 - val_loss: 0.7806 - val_acc: 0.
5000
Epoch 3/40
7/7 [==============================] - 0s 38ms/step - loss: 0.4944 - acc: 0.7900 - val_loss: 0.9973 - val_acc: 0.
5000
Epoch 4/40
7/7 [==============================] - 0s 36ms/step - loss: 0.4710 - acc: 0.7900 - val_loss: 0.9562 - val_acc: 0.
5000
Epoch 5/40
7/7 [==============================] - 0s 36ms/step - loss: 0.4735 - acc: 0.7900 - val_loss: 0.6991 - val_acc: 0.
5625
Epoch 6/40
7/7 [==============================] - 0s 34ms/step - loss: 0.4250 - acc: 0.7950 - val_loss: 1.0054 - val_acc: 0.
5000
Epoch 7/40
7/7 [==============================] - 0s 34ms/step - loss: 0.3748 - acc: 0.8400 - val_loss: 0.8075 - val_acc: 0.
6250
Epoch 8/40
7/7 [==============================] - 0s 34ms/step - loss: 0.3213 - acc: 0.8400 - val_loss: 0.6405 - val_acc: 0.
6250
Epoch 9/40
7/7 [==============================] - 0s 36ms/step - loss: 0.2819 - acc: 0.8950 - val_loss: 0.5976 - val_acc: 0.
7500
Epoch 10/40
7/7 [==============================] - 0s 39ms/step - loss: 0.2879 - acc: 0.8800 - val_loss: 0.6917 - val_acc: 0.
7500
Epoch 11/40
```

```
7/7 [==============================] - 0s 35ms/step - loss: 0.2461 - acc: 0.8900 - val_loss: 1.3612 - val_acc: 0.
6250
Epoch 12/40
7/7 [==============================] - 0s 35ms/step - loss: 0.1942 - acc: 0.9400 - val_loss: 0.7703 - val_acc: 0.
8125
Epoch 13/40
7/7 [==============================] - 0s 36ms/step - loss: 0.1789 - acc: 0.9300 - val_loss: 1.3568 - val_acc: 0.
6250
Epoch 14/40
7/7 [==============================] - 0s 35ms/step - loss: 0.1212 - acc: 0.9600 - val_loss: 0.8797 - val_acc: 0.
7500
Epoch 15/40
7/7 [==============================] - 0s 34ms/step - loss: 0.1078 - acc: 0.9600 - val_loss: 1.3907 - val_acc: 0.
6875
Epoch 16/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0922 - acc: 0.9650 - val_loss: 1.0479 - val_acc: 0.
8125
Epoch 17/40
7/7 [==============================] - 0s 36ms/step - loss: 0.0917 - acc: 0.9600 - val_loss: 1.1386 - val_acc: 0.
7500
Epoch 18/40
7/7 [==============================] - 0s 35ms/step - loss: 0.0554 - acc: 0.9900 - val_loss: 1.4019 - val_acc: 0.
7500
Epoch 19/40
7/7 [==============================] - 0s 35ms/step - loss: 0.0509 - acc: 0.9850 - val_loss: 1.2614 - val_acc: 0.
7500
Epoch 20/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0386 - acc: 0.9950 - val_loss: 1.6980 - val_acc: 0.
6875
Epoch 21/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0472 - acc: 0.9950 - val_loss: 1.8137 - val_acc: 0.
6250
Epoch 22/40
7/7 [==============================] - 0s 37ms/step - loss: 0.0403 - acc: 0.9900 - val_loss: 0.8429 - val_acc: 0.
8125
Epoch 23/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0487 - acc: 0.9900 - val_loss: 1.9119 - val_acc: 0.
6875
Epoch 24/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0488 - acc: 0.9850 - val_loss: 1.2796 - val_acc: 0.
8125
Epoch 25/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0219 - acc: 1.0000 - val_loss: 1.6883 - val_acc: 0.
7500
Epoch 26/40
7/7 [==============================] - 0s 33ms/step - loss: 0.0247 - acc: 0.9900 - val_loss: 1.1133 - val_acc: 0.
7500
Epoch 27/40
7/7 [==============================] - 0s 33ms/step - loss: 0.0393 - acc: 0.9850 - val_loss: 1.3256 - val_acc: 0.
7500
Epoch 28/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0154 - acc: 1.0000 - val_loss: 1.5734 - val_acc: 0.
7500
Epoch 29/40
7/7 [==============================] - 0s 37ms/step - loss: 0.0095 - acc: 1.0000 - val_loss: 1.7619 - val_acc: 0.
7500
Epoch 30/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0095 - acc: 1.0000 - val_loss: 1.3681 - val_acc: 0.
8125
Epoch 31/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0227 - acc: 0.9900 - val_loss: 1.8825 - val_acc: 0.
7500
Epoch 32/40
7/7 [==============================] - 0s 37ms/step - loss: 0.0085 - acc: 1.0000 - val_loss: 1.7530 - val_acc: 0.
7500
Epoch 33/40
7/7 [==============================] - 0s 35ms/step - loss: 0.0123 - acc: 1.0000 - val_loss: 1.5477 - val_acc: 0.
8125
Epoch 34/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0171 - acc: 0.9950 - val_loss: 1.4517 - val_acc: 0.
8125
Epoch 35/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0079 - acc: 1.0000 - val_loss: 2.2720 - val_acc: 0.
7500
Epoch 36/40
7/7 [==============================] - 0s 35ms/step - loss: 0.0073 - acc: 1.0000 - val_loss: 2.0245 - val_acc: 0.
7500
Epoch 37/40
7/7 [==============================] - 0s 34ms/step - loss: 0.0085 - acc: 1.0000 - val_loss: 1.8663 - val_acc: 0.
7500
Epoch 38/40
```

```
7/7 [==============================] - 0s 37ms/step - loss: 0.0078 - acc: 0.9950 - val_loss: 2.6841 - val_acc: 0.
6875
Epoch 39/40
7/7 [==============================] - 0s 36ms/step - loss: 0.0067 - acc: 1.0000 - val_loss: 1.8846 - val_acc: 0.
7500
Epoch 40/40
7/7 [==============================] - 0s 35ms/step - loss: 0.0045 - acc: 1.0000 - val_loss: 1.7688 - val_acc: 0.
8125
```

In [109…]
```
train_acc = history.history['acc']
val_acc = history.history['val_acc']
train_loss = history.history['loss']
val_loss = history.history['val_loss']
epch = range(1, len(train_acc) + 1)
plt.plot(epch, train_acc, 'g.', label='Training Accuracy')
plt.plot(epch, val_acc, 'g', label='Validation acc')
plt.title('Accuracy')
plt.legend()
plt.figure()
plt.plot(epch, train_loss, 'r.', label='Training loss')
plt.plot(epch, val_loss, 'r', label='Validation loss')
plt.title('Loss')
plt.legend()
plt.show()
```





In [110…]
```
results_train = model.evaluate(train_images, train_y)
```

```
7/7 [==============================] - 0s 7ms/step - loss: 8.9096e-04 - acc: 1.0000
```

In [111…]
```
results_val = model.evaluate(val_images, val_y)
```

```
1/1 [==============================] - 0s 499us/step - loss: 1.7688 - acc: 0.8125
```

In [112…]
```
results_train
```

Out[112…]
```
[0.0008909601019695401, 1.0]
```

In [113…]
```
results_val
```

Out[113…]
```
[1.7688368558883667, 0.8125]
```

With the results as indicated in the two previous cells, we can see our final model is overfitted. Steps to take in order to reduce

overfitting would include adding dropout layers, reducing the number of layers, L1 / L2 regularization, or augmenting the data.

Misc

X = [] files = glob.glob ("C:\Users\rychu\Desktop\2021\FLT\P4-Project\chest_xray\test\NORMAL*jpeg") for myFile in files: print(myFile) image = cv2.imread (myFile) X.append (image) print('X shape:', np.array(X).shape)

y = [] files = glob.glob ("C:\Users\rychu\Desktop\2021\FLT\P4-Project\chest_xray\test\PNEUMONIA*jpeg") for myFile in files: print(myFile) image = cv2.imread (myFile) y.append (image) print('y shape:', np.array(y).shape)

load image as pixel array image = image.imread("C:\Users\rychu\Desktop\2021\FLT\P4-Project\chest_xray\train\NORMAL\IM-0151-0001.jpeg") summarize shape of the pixel array print(image.dtype) print(image.shape) display the array of pixels as an image pyplot.imshow(image) pyplot.show()