

Files

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{x}

..

dogs\_vs\_cats

sample\_data

test

train

dogs-vs-cats.zip

kaggle.json

<>

Disk 78.60 GB available

```
[1] !mkdir -p ~/.kaggle
    !cp kaggle.json ~/.kaggle/

[2] !kaggle datasets download -d salader/dogs-vs-cats

Warning: Your Kaggle API key is readable by other users on this system! To fix this, you can run 'chmod 600 /root/.kaggle/kaggle.json'
Downloading dogs-vs-cats.zip to /content
 99% 1.05G/1.06G [00:08<00:00, 40.9MB/s]
100% 1.06G/1.06G [00:09<00:00, 127MB/s]

[3] import zipfile
    zip_ref = zipfile.ZipFile('/content/dogs-vs-cats.zip', 'r')
    zip_ref.extractall('/content')
    zip_ref.close()

[4] import tensorflow as tf
    from tensorflow import keras
    from keras import Sequential
    from keras.layers import Dense, Conv2D, MaxPooling2D, Flatten

[6] # generators
    train_ds = keras.utils.image_dataset_from_directory(
        directory = '/content/train',
```

0s completed at 12:52 PM

Congratulations, you have b

cats-v-dogs-classification.ipynb

dogs vs cats

Kaggle API Key Fix

My Drive - Google Drive

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✓ 1s

[6] # generators

train\_ds = keras.utils.image\_dataset\_from\_directory(  
    directory = '/content/train',  
    labels='inferred',  
    label\_mode = 'int',  
    batch\_size=32,  
    image\_size=(256,256)  
)

validation\_ds = keras.utils.image\_dataset\_from\_directory(  
    directory = '/content/test',  
    labels='inferred',  
    label\_mode = 'int',  
    batch\_size=32,  
    image\_size=(256,256)  
)

Found 20000 files belonging to 2 classes.  
Found 5000 files belonging to 2 classes.

✓ 0s

[7] # Normalize

def process(image,label):  
    image = tf.cast(image/255. ,tf.float32)  
    return image,label

train\_ds = train\_ds.map(process)  
validation\_ds = validation\_ds.map(process)

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```
[7] train_ds = train_ds.map(process)
     validation_ds = validation_ds.map(process)

[10] # create CNN model
      model = Sequential()

      model.add(Conv2D(32, kernel_size=(3, 3), padding='valid', activation='relu', input_shape=(256, 256, 3)))
      model.add(MaxPooling2D(pool_size=(2, 2), strides=2, padding='valid'))

      model.add(Conv2D(64, kernel_size=(3, 3), padding='valid', activation='relu'))
      model.add(MaxPooling2D(pool_size=(2, 2), strides=2, padding='valid'))

      model.add(Conv2D(128, kernel_size=(3, 3), padding='valid', activation='relu'))
      model.add(MaxPooling2D(pool_size=(2, 2), strides=2, padding='valid'))

      model.add(Flatten())

      model.add(Dense(128, activation='relu'))
      model.add(Dense(64, activation='relu'))
      model.add(Dense(1, activation='sigmoid'))
```



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```
[11] model.summary()
```

Model: "sequential\_2"

Layer (type)	Output Shape	Param #
conv2d_3 (Conv2D)	(None, 254, 254, 32)	896
max_pooling2d_3 (MaxPooling2D)	(None, 127, 127, 32)	0
conv2d_4 (Conv2D)	(None, 125, 125, 64)	18496
max_pooling2d_4 (MaxPooling2D)	(None, 62, 62, 64)	0
conv2d_5 (Conv2D)	(None, 60, 60, 128)	73856
max_pooling2d_5 (MaxPooling2D)	(None, 30, 30, 128)	0
flatten_1 (Flatten)	(None, 115200)	0
dense_2 (Dense)	(None, 128)	14745728
dense_3 (Dense)	(None, 64)	8256
dense_4 (Dense)	(None, 1)	65

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✓ [11] conv2d_4 (Conv2D)      (None, 125, 125, 64)    18496
      max_pooling2d_4 (MaxPoolin (None, 62, 62, 64)    0
      g2D)

      conv2d_5 (Conv2D)      (None, 60, 60, 128)    73856
      max_pooling2d_5 (MaxPoolin (None, 30, 30, 128)    0
      g2D)

      flatten_1 (Flatten)     (None, 115200)         0
      dense_2 (Dense)         (None, 128)            14745728
      dense_3 (Dense)         (None, 64)             8256
      dense_4 (Dense)         (None, 1)              65

=====
Total params: 14847297 (56.64 MB)
Trainable params: 14847297 (56.64 MB)
Non-trainable params: 0 (0.00 Byte)

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

history = model.fit(train_ds,epochs=10,validation_data=validation_ds)
  
```

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dogs vs cats

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

history = model.fit(train\_ds,epochs=10,validation\_data=validation\_ds)

Epoch 1/10  
625/625 [=====] - 3112s 5s/step - loss: 2.0115 - accuracy: 0.5936 - val\_loss: 0.6803 - val\_accuracy: 0.6144  
Epoch 2/10  
625/625 [=====] - 3156s 5s/step - loss: 0.6453 - accuracy: 0.6400 - val\_loss: 0.6483 - val\_accuracy: 0.6408  
Epoch 3/10  
625/625 [=====] - 3117s 5s/step - loss: 0.5804 - accuracy: 0.6895 - val\_loss: 0.6489 - val\_accuracy: 0.6602  
Epoch 4/10  
625/625 [=====] - 3109s 5s/step - loss: 0.4616 - accuracy: 0.7704 - val\_loss: 0.7197 - val\_accuracy: 0.6580  
Epoch 5/10  
625/625 [=====] - 3074s 5s/step - loss: 0.3313 - accuracy: 0.8497 - val\_loss: 0.8950 - val\_accuracy: 0.6664  
Epoch 6/10  
625/625 [=====] - 3070s 5s/step - loss: 0.2278 - accuracy: 0.9075 - val\_loss: 1.1183 - val\_accuracy: 0.6564  
Epoch 7/10  
625/625 [=====] - 3048s 5s/step - loss: 0.1796 - accuracy: 0.9362 - val\_loss: 1.3760 - val\_accuracy: 0.6576  
Epoch 8/10  
625/625 [=====] - 3031s 5s/step - loss: 0.1557 - accuracy: 0.9466 - val\_loss: 1.4039 - val\_accuracy: 0.6616  
Epoch 9/10  
625/625 [=====] - 3028s 5s/step - loss: 0.1076 - accuracy: 0.9639 - val\_loss: 1.7474 - val\_accuracy: 0.6442  
Epoch 10/10  
625/625 [=====] - 3070s 5s/step - loss: 0.1212 - accuracy: 0.9636 - val\_loss: 1.3272 - val\_accuracy: 0.6390

8h 35m 37s completed at 9:30 PM

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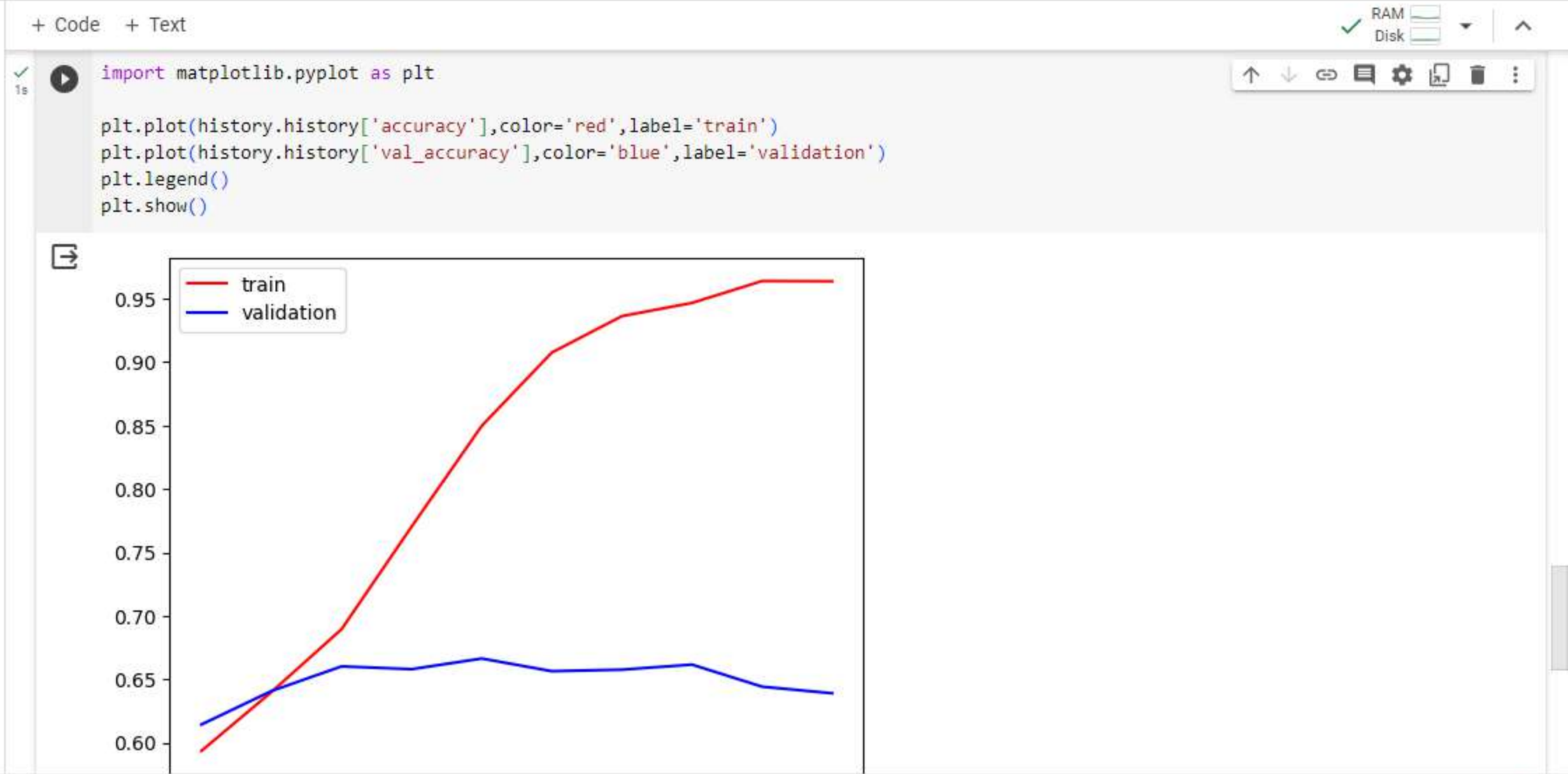
Search

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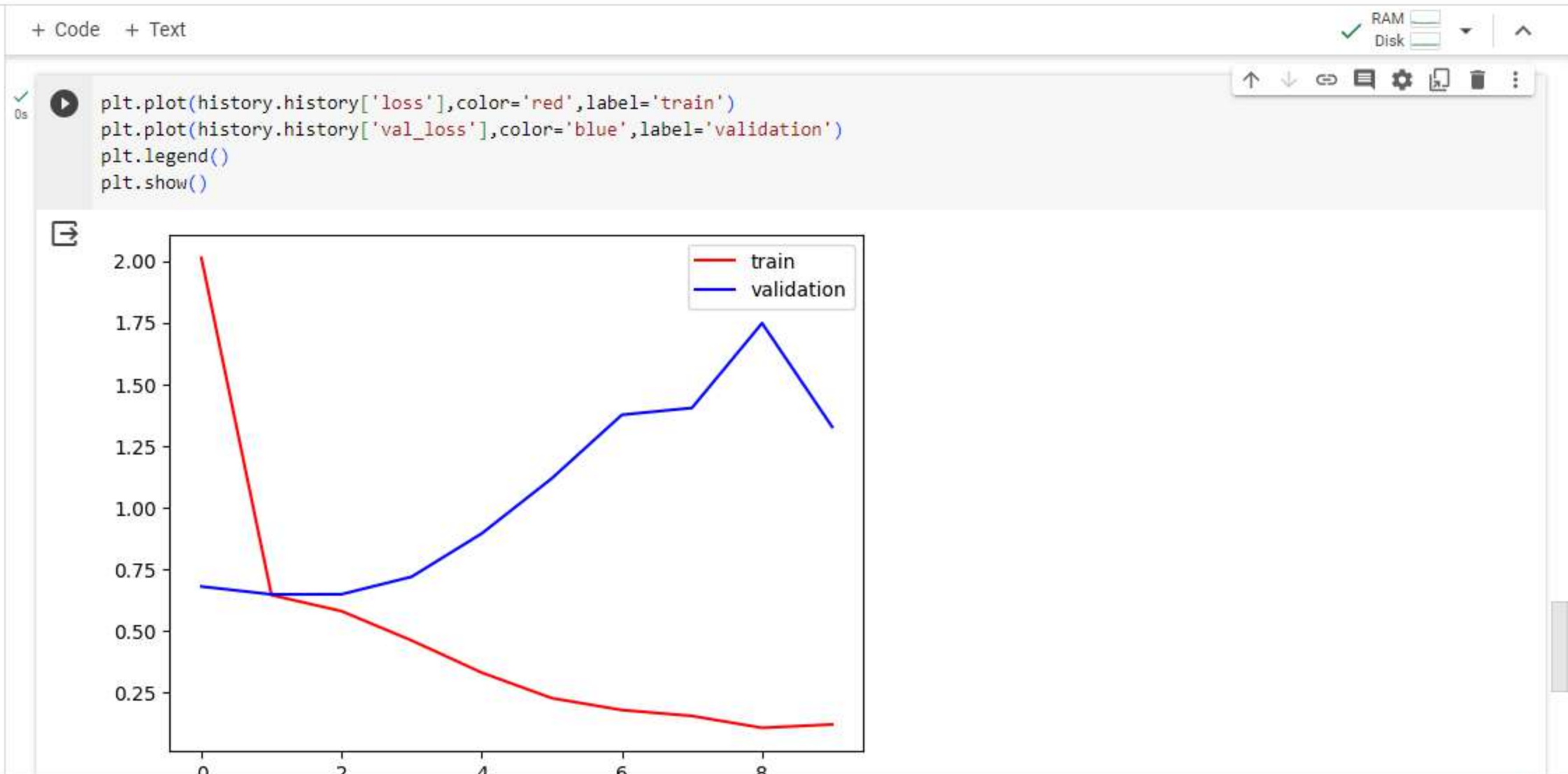
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cat.9.jpg

dog.9.jpg

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+ Code + Text

0s [21] import cv2

0s [34] test\_img = cv2.imread('/content/dog.jpg')

0s [35] from PIL import Image  
try:  
test\_img = Image.open("/content/cat.9.jpg")  
except Exception as e:  
print(f"Error loading the image: {e}")  
# Handle the error (e.g., print an error message, log the error, etc.)

1s [39] from PIL import Image  
import numpy as np  
try:  
test\_img = Image.open("/content/cat.9.jpg")  
if test\_img is not None:  
# Convert the image to a NumPy array and then to uint8  
test\_img = np.array(test\_img)  
if test\_img.dtype != np.uint8:  
test\_img = test\_img.astype(np.uint8)

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cat.9.jpg

dog.9.jpg

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+ Code + Text

0s

[35]

```
test_img = Image.open("/content/cat.9.jpg")
except Exception as e:
    print(f"Error loading the image: {e}")
    # Handle the error (e.g., print an error message, log the error, etc.)
```

1s

[39]

```
from PIL import Image
import numpy as np

try:
    test_img = Image.open("/content/cat.9.jpg")
    if test_img is not None:
        # Convert the image to a NumPy array and then to uint8
        test_img = np.array(test_img)
        if test_img.dtype != np.uint8:
            test_img = test_img.astype(np.uint8)

        # Display the image
        plt.imshow(test_img)
        plt.show()
    else:
        print("Image loading failed.")
except Exception as e:
    print(f"Error loading the image: {e}")
```

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dog.9.jpg

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✓ [39] 1s



✓ [40] 0s

```
test_img.shape
```

(425, 320, 3)

✓ 0s completed at 10:30 PM

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+ Code + Text

✓ [39] 1s



250

300

350

400

0 100 200 300

✓ [40] 0s

test\_img.shape

(425, 320, 3)

✓ [41] 0s

test\_img = cv2.resize(test\_img, (256, 256))

✓ [42] 0s

test\_input = test\_img.reshape((1, 256, 256, 3))

✓ [43] 0s

model.predict(test\_input)

1/1 [=====] - 0s 265ms/step

array([[0.9800633]], dtype=float32)

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+ Code + Text

0s

[35]

try:

test\_img = Image.open("/content/cat.9.jpg")

except Exception as e:

print(f"Error loading the image: {e}")

# Handle the error (e.g., print an error message, log the error, etc.)

1s

from PIL import Image

import numpy as np

try:

test\_img = Image.open("/content/dog.9.jpg")

if test\_img is not None:

# Convert the image to a NumPy array and then to uint8

test\_img = np.array(test\_img)

if test\_img.dtype != np.uint8:

test\_img = test\_img.astype(np.uint8)

# Display the image

plt.imshow(test\_img)

plt.show()

else:

print("Image loading failed.")

except Exception as e:

print(f"Error loading the image: {e}")

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0s

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1s



0s

test\_img.shape

(425, 320, 3)

0s

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cat.9.jpg


dog.9.jpg

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+ Code + Text

✓ [45] 1s



✓ [46] 0s

test\_img.shape

(500, 368, 3)

✓ [48] 0s

test\_img = cv2.resize(test\_img,(256,256))

✓ [49] 0s

test\_input = test\_img.reshape((1,256,256,3))

✓ 0s

▶

model.predict(test\_input)

1/1 [=====] - 0s 106ms/step  
array([[0.99398327]], dtype=float32)


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