Files

..
Animal_Dataset.z...
sample_data
2Q__ (1).jpeg
2Q__ (2).jpeg
2Q__ (3).jpeg
2Q__ (4).jpeg
2Q__ (5).jpeg
2Q__ (6).jpeg
2Q__ (7).jpeg
2Q__ (8).jpeg
2Q__.jpeg
9k_ (1).jpeg
9k_ (10).jpeg
9k_ (11).jpeg
9k_ (12).jpeg
9k_ (13).jpeg

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RAM
Disk

[1] 23s
```
from google.colab import drive
drive.mount('/content/Animal_Dataset.zip')
```

```
Mounted at /content/Animal_Dataset.zip
```

[2] 3s
```
import tensorflow as tf
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

[3] 0s
```
datagen = ImageDataGenerator(
        rotation_range=20,
        width_shift_range=0.2,
        height_shift_range=0.2,
        horizontal_flip=True,
        vertical_flip=False,
        zoom_range=0.1
)
```

[6] 0s
```
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Conv2D, MaxPooling2D, Flatten,Dense
```

0s
```
# create model
model = Sequential()
```

G1 (35).jpeg ima

0s completed at 12:06 PM

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RAM
Disk

```
[9]  # add input layer
     model.add(Conv2D(32, (3,3), activation='relu', input_shape=(224, 224, 3)))

[10] # add convolutional layer
     model.add(Conv2D(64, (3,3), activation='relu'))
     model.add(MaxPooling2D((2,2)))

[11] # add flatten layer
     model.add(Flatten())

[12] # add hidden layers
     model.add(Dense(128, activation='relu'))
     model.add(Dense(64, activation='relu'))

     # add output layer
     model.add(Dense(90, activation='softmax'))
```

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```
[14] # compile model
     model.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy'])

[15] # print model summary
     model.summary()
```

G1 (35).jpeg ima

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Files

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RAM
Disk

```
[14] # compile model
     model.compile(optimizer='adam', loss='categorical_crossentropy', metrics=['accuracy'])
```

```
     # print model summary
     model.summary()
```

```
Model: "sequential_1"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 222, 222, 32)      896

 conv2d_1 (Conv2D)           (None, 220, 220, 64)      18496

 max_pooling2d (MaxPooling2D  (None, 110, 110, 64)     0
 )

 flatten (Flatten)           (None, 774400)            0

 dense (Dense)               (None, 128)               99123328

 dense_1 (Dense)             (None, 64)                8256

 dense_2 (Dense)             (None, 90)                5850

=================================================================
Total params: 99,156,826
Trainable params: 99,156,826
```

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9k_ (13).jpeg

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RAM
Disk

```
Total params: 99,156,826
[15] Trainable params: 99,156,826
     Non-trainable params: 0
     _________________________________________________________________
```

```
[17] #TESTING THE MODEL
     from tensorflow.keras.preprocessing import image
     import numpy as np
     import matplotlib as plt
```

```
     img_path = '/content/images (35).jpeg'
     img = image.load_img(img_path, target_size=(224, 224))
     x = image.img_to_array(img)
     x = np.expand_dims(x, axis=0)
     x /= 255.0
```

```
[19] x = image.img_to_array(img)
     x
```

```
array([[[255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.],
        ...,
        [255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.]],
```

G1 (35).jpeg ima

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9k_ (10).jpeg
9k_ (11).jpeg
9k_ (12).jpeg
9k_ (13).jpeg

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RAM
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```
        [255., 255., 255.],
        [255., 255., 255.],
        ...,
        [255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.]],

       [[255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.],
        ...,
        [255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.]],

       [[255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.],
        ...,
        [255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.]],

       ...,

       [[255., 255., 255.],
        [255., 255., 255.],
        [255., 255., 255.],
        ...,
        [255., 255., 255.],
```

G1 (35).jpeg

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9k_ (10).jpeg
9k_ (11).jpeg
9k_ (12).jpeg
9k_ (13).jpeg

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RAM
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```
          [255., 255., 255.],
          [255., 255., 255.],
          [255., 255., 255.]],

         [[255., 255., 255.],
          [255., 255., 255.],
          [255., 255., 255.],
          ...,
          [255., 255., 255.],
          [255., 255., 255.],
          [255., 255., 255.]],

         [[255., 255., 255.],
          [255., 255., 255.],
          [255., 255., 255.],
          ...,
          [255., 255., 255.],
          [255., 255., 255.],
          [255., 255., 255.]]], dtype=float32)
```

0s

```
[20] img = np.expand_dims(x,axis=0)
```

0s

```
[21] img
```

```
array([[[[255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.],
```

G1 (35).jpeg

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Files

+ Code + Text

RAM
Disk

```
img
```

```
array([[[[255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.],
         ...,
         [255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.]],

        [[255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.],
         ...,
         [255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.]],

        [[255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.],
         ...,
         [255., 255., 255.],
         [255., 255., 255.],
         [255., 255., 255.]],

        ...,

        [[255., 255., 255.],
```

G1 (35).jpeg

- ..
- Animal_Dataset.z...
- sample_data
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Files

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2Q__.jpeg
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9k_ (11).jpeg
9k_ (12).jpeg
9k_ (13).jpeg

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+ Code + Text

RAM
Disk

[21]

```
[[[255., 255., 255.],
  [255., 255., 255.],
  [255., 255., 255.],
  ...,
  [255., 255., 255.],
  [255., 255., 255.],
  [255., 255., 255.]],

 [[255., 255., 255.],
  [255., 255., 255.],
  [255., 255., 255.],
  ...,
  [255., 255., 255.],
  [255., 255., 255.],
  [255., 255., 255.]],

 [[255., 255., 255.],
  [255., 255., 255.],
  [255., 255., 255.],
  ...,
  [255., 255., 255.],
  [255., 255., 255.],
  [255., 255., 255.]]], dtype=float32)
```

[22]

```
pred = model.predict(img)
pred
```

```
1/1 [==============================] - 0s 363ms/step
```

G1 (35).jpeg

0s completed at 12:06 PM

Files

+ Code + Text

RAM
Disk

..
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sample_data
2Q__ (1).jpeg
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2Q__.jpeg
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9k_ (11).jpeg
9k_ (12).jpeg
9k_ (13).jpeg

Disk 84.30 GB available

```
pred = model.predict(img)
pred
```

```
1/1 [==============================] - 0s 363ms/step
array([[2.8964038e-33, 0.0000000e+00, 0.0000000e+00, 1.5968603e-37,
        5.5316819e-26, 1.0470969e-18, 0.0000000e+00, 3.8477343e-20,
        1.2835478e-24, 1.8944568e-33, 3.5607755e-26, 1.5577895e-35,
        2.8764465e-37, 4.2354050e-25, 1.7424118e-29, 0.0000000e+00,
        2.3987354e-22, 1.0844710e-21, 1.8112091e-19, 2.1507496e-26,
        4.9784685e-26, 5.2715205e-13, 7.4788025e-29, 2.8063192e-16,
        3.9482492e-27, 4.5334188e-24, 3.7561993e-32, 1.4786760e-36,
        2.9709662e-18, 1.7614668e-05, 3.0651907e-12, 7.8213941e-33,
        6.7197304e-28, 1.0109504e-20, 5.2480010e-22, 1.4838353e-28,
        1.2903626e-38, 2.4961157e-31, 7.4242340e-12, 3.6405861e-35,
        7.6489007e-26, 1.3932475e-22, 1.9551558e-15, 9.4660776e-28,
        0.0000000e+00, 1.0682398e-22, 0.0000000e+00, 0.0000000e+00,
        4.6050120e-35, 1.2851332e-27, 0.0000000e+00, 0.0000000e+00,
        4.3236845e-34, 1.9059946e-28, 1.3913027e-38, 1.3467976e-27,
        9.9506754e-15, 2.9446240e-23, 0.0000000e+00, 4.4933065e-15,
        0.0000000e+00, 4.7160912e-26, 7.6027222e-29, 0.0000000e+00,
        1.6687856e-28, 3.3933515e-14, 3.5817624e-07, 4.7800233e-05,
        0.0000000e+00, 7.8570997e-33, 1.6833399e-25, 4.9941344e-29,
        1.4780508e-05, 1.9714627e-05, 4.6013353e-38, 6.1268499e-32,
        5.8633758e-29, 2.7452739e-26, 2.6517876e-07, 1.7834909e-25,
        1.8230899e-27, 9.1323167e-26, 4.0813890e-19, 1.4113299e-34,
        0.0000000e+00, 4.9444775e-18, 5.3170507e-10, 4.8055747e-16,
        9.9989951e-01, 9.5408236e-22]], dtype=float32)
```

G1 (35).jpeg

0s completed at 12:06 PM

Files

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sample_data
2Q__ (1).jpeg
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9k_ (13).jpeg

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RAM
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```
                9.9989951e-01, 9.5408236e-22]], dtype=float32)
```

```
[23] np.argmax(pred)
```

```
88
```

```
[24] import tensorflow as tf
```

```
tf.__version__
```

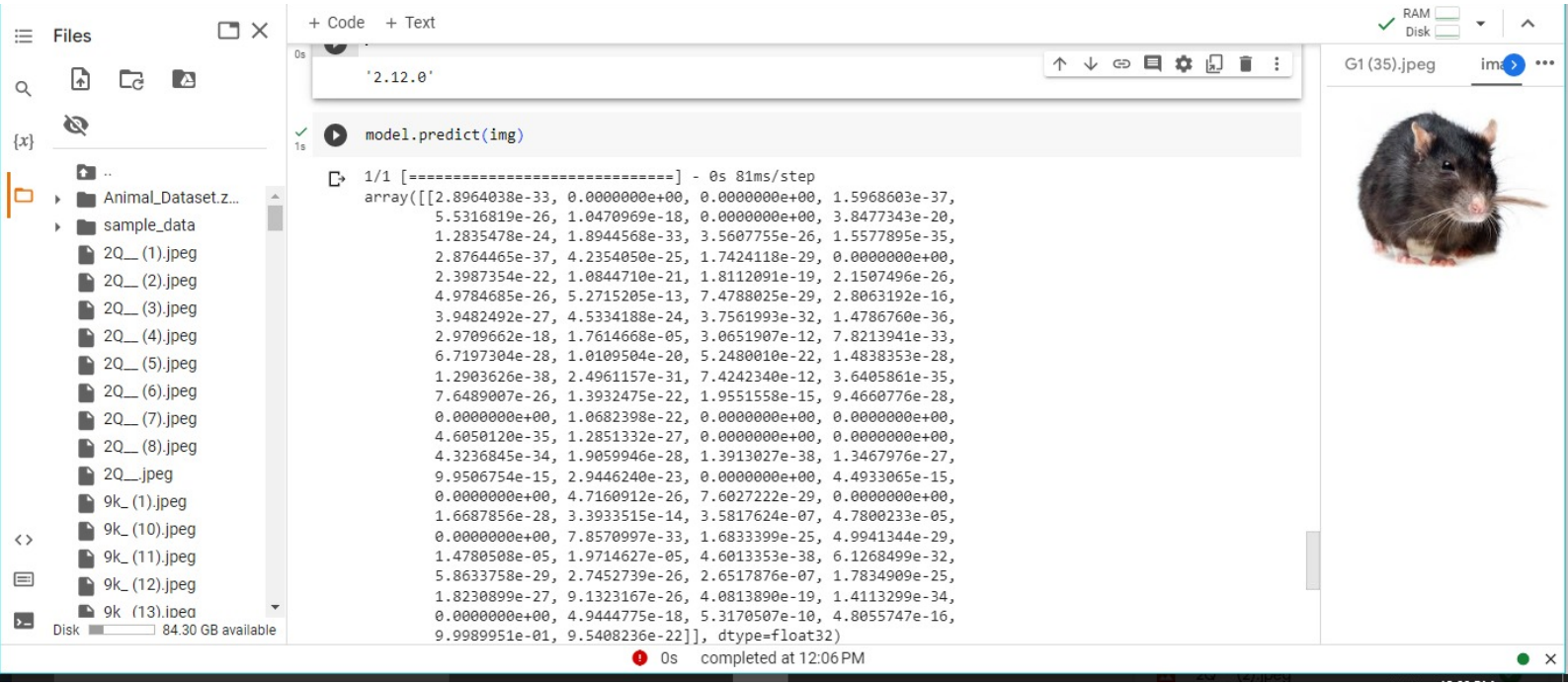
```
'2.12.0'
```

```
[28] model.predict(img)
```

```
1/1 [==============================] - 0s 81ms/step
array([[2.8964038e-33, 0.0000000e+00, 0.0000000e+00, 1.5968603e-37,
        5.5316819e-26, 1.0470969e-18, 0.0000000e+00, 3.8477343e-20,
        1.2835478e-24, 1.8944568e-33, 3.5607755e-26, 1.5577895e-35,
        2.8764465e-37, 4.2354050e-25, 1.7424118e-29, 0.0000000e+00,
        2.3987354e-22, 1.0844710e-21, 1.8112091e-19, 2.1507496e-26,
        4.9784685e-26, 5.2715205e-13, 7.4788025e-29, 2.8063192e-16,
        3.9482492e-27, 4.5334188e-24, 3.7561993e-32, 1.4786760e-36,
        2.9709662e-18, 1.7614668e-05, 3.0651907e-12, 7.8213941e-33,
        6.7197304e-28, 1.0109504e-20, 5.2480010e-22, 1.4838353e-28,
        1.2903626e-38, 2.4961157e-31, 7.4242340e-12, 3.6405861e-35,
        7.6489007e-26, 1.3932475e-22, 1.9551558e-15, 9.4660776e-28,
```

G1 (35).jpeg ima

0s completed at 12:06 PM


Files
+ Code
+ Text
RAM
Disk
'2.12.0'
model.predict(img)
1/1 [==============================] - 0s 81ms/step
array([[2.8964038e-33, 0.0000000e+00, 0.0000000e+00, 1.5968603e-37,
5.5316819e-26, 1.0470969e-18, 0.0000000e+00, 3.8477343e-20,
1.2835478e-24, 1.8944568e-33, 3.5607755e-26, 1.5577895e-35,
2.8764465e-37, 4.2354050e-25, 1.7424118e-29, 0.0000000e+00,
2.3987354e-22, 1.0844710e-21, 1.8112091e-19, 2.1507496e-26,
4.9784685e-26, 5.2715205e-13, 7.4788025e-29, 2.8063192e-16,
3.9482492e-27, 4.5334188e-24, 3.7561993e-32, 1.4786760e-36,
2.9709662e-18, 1.7614668e-05, 3.0651907e-12, 7.8213941e-33,
6.7197304e-28, 1.0109504e-20, 5.2480010e-22, 1.4838353e-28,
1.2903626e-38, 2.4961157e-31, 7.4242340e-12, 3.6405861e-35,
7.6489007e-26, 1.3932475e-22, 1.9551558e-15, 9.4660776e-28,
0.0000000e+00, 1.0682398e-22, 0.0000000e+00, 0.0000000e+00,
4.6050120e-35, 1.2851332e-27, 0.0000000e+00, 0.0000000e+00,
4.3236845e-34, 1.9059946e-28, 1.3913027e-38, 1.3467976e-27,
9.9506754e-15, 2.9446240e-23, 0.0000000e+00, 4.4933065e-15,
0.0000000e+00, 4.7160912e-26, 7.6027222e-29, 0.0000000e+00,
1.6687856e-28, 3.3933515e-14, 3.5817624e-07, 4.7800233e-05,
0.0000000e+00, 7.8570997e-33, 1.6833399e-25, 4.9941344e-29,
1.4780508e-05, 1.9714627e-05, 4.6013353e-38, 6.1268499e-32,
5.8633758e-29, 2.7452739e-26, 2.6517876e-07, 1.7834909e-25,
1.8230899e-27, 9.1323167e-26, 4.0813890e-19, 1.4113299e-34,
0.0000000e+00, 4.9444775e-18, 5.3170507e-10, 4.8055747e-16,
9.9989951e-01, 9.5408236e-22]], dtype=float32)
G1 (35).jpeg
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