```
!unzip "/content/Flowers-Dataset.zip"
```

```
Archive:  /content/Flowers-Dataset.zip
  inflating: flowers/daisy/100080576_f52e8ee070_n.jpg
  inflating: flowers/daisy/10140303196_b88d3d6cec.jpg
  inflating: flowers/daisy/10172379554_b296050f82_n.jpg
  inflating: flowers/daisy/10172567486_2748826a8b.jpg
  inflating: flowers/daisy/10172636503_21bededa75_n.jpg
  inflating: flowers/daisy/102841525_bd6628ae3c.jpg
  inflating: flowers/daisy/10300722094_28fa978807_n.jpg
  inflating: flowers/daisy/1031799732_e7f4008c03.jpg
  inflating: flowers/daisy/10391248763_1d16681106_n.jpg
  inflating: flowers/daisy/10437754174_22ec990b77_m.jpg
  inflating: flowers/daisy/10437770546_8bb6f7bdd3_m.jpg
  inflating: flowers/daisy/10437929963_bc13eebe0c.jpg
  inflating: flowers/daisy/10466290366_cc72e33532.jpg
  inflating: flowers/daisy/10466558316_a7198b87e2.jpg
  inflating: flowers/daisy/10555749515_13a12a026e.jpg
  inflating: flowers/daisy/10555815624_dc211569b0.jpg
  inflating: flowers/daisy/10555826524_423eb8bf71_n.jpg
  inflating: flowers/daisy/10559679065_50d2b16f6d.jpg
  inflating: flowers/daisy/105806915_a9c13e2106_n.jpg
  inflating: flowers/daisy/10712722853_5632165b04.jpg
  inflating: flowers/daisy/107592979_aaa9cdfe78_m.jpg
  inflating: flowers/daisy/10770585085_4742b9dac3_n.jpg
  inflating: flowers/daisy/10841136265_af473efc60.jpg
  inflating: flowers/daisy/10993710036_2033222c91.jpg
  inflating: flowers/daisy/10993818044_4c19b86c82.jpg
  inflating: flowers/daisy/10994032453_ac7f8d9e2e.jpg
  inflating: flowers/daisy/11023214096_b5b39fab08.jpg
  inflating: flowers/daisy/11023272144_fce94401f2_m.jpg
  inflating: flowers/daisy/11023277956_8980d53169_m.jpg
  inflating: flowers/daisy/11124324295_503f3a0804.jpg
  inflating: flowers/daisy/1140299375_3aa7024466.jpg
  inflating: flowers/daisy/11439894966_dca877f0cd.jpg
  inflating: flowers/daisy/1150395827_6f94a5c6e4_n.jpg
  inflating: flowers/daisy/11642632_1e7627a2cc.jpg
  inflating: flowers/daisy/11834945233_a53b7a92ac_m.jpg
  inflating: flowers/daisy/11870378973_2ec1919f12.jpg
  inflating: flowers/daisy/11891885265_ccefec7284_n.jpg
  inflating: flowers/daisy/12193032636_b50ae7db35_n.jpg
  inflating: flowers/daisy/12348343085_d4c396e5b5_m.jpg
  inflating: flowers/daisy/12585131704_0f64b17059_m.jpg
  inflating: flowers/daisy/12601254324_3cb62c254a_m.jpg
  inflating: flowers/daisy/1265350143_6e2b276ec9.jpg
  inflating: flowers/daisy/12701063955_4840594ea6_n.jpg
  inflating: flowers/daisy/1285423653_18926dc2c8_n.jpg
  inflating: flowers/daisy/1286274236_1d7ac84efb_n.jpg
  inflating: flowers/daisy/12891819633_e4c82b51e8.jpg
  inflating: flowers/daisy/1299501272_59d9da5510_n.jpg
  inflating: flowers/daisy/1306119996_ab8ae14d72_n.jpg
  inflating: flowers/daisy/1314069875_da8dc023c6_m.jpg
  inflating: flowers/daisy/1342002397_9503c97b49.jpg
  inflating: flowers/daisy/134409839_71069a95d1_m.jpg
  inflating: flowers/daisy/1344985627_c3115e2d71_n.jpg
  inflating: flowers/daisy/13491959645_2cd9df44d6_n.jpg
  inflating: flowers/daisy/1354396826_2868631432_m.jpg
  inflating: flowers/daisy/1355787476_32e9f2a30b.jpg
```

```
       inflating: flowers/daisy/13583238844_573df2de8e_m.jpg
       inflating: flowers/daisy/1374193928_a52320eafa.jpg
```

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
train_datagen = ImageDataGenerator(rescale=1./255,
                                   zoom_range=0.2,
                                   horizontal_flip=True,vertical_flip=True)
test_datagen = ImageDataGenerator(rescale=1./255)
xtrain = train_datagen.flow_from_directory('/content/flowers',
                                           target_size=(64,64),
                                           class_mode='categorical',
                                           batch_size=24)
xtest = test_datagen.flow_from_directory('/content/flowers',
                                         target_size=(64,64),
                                         class_mode='categorical',
                                         batch_size=124)
```

```
    Found 4317 images belonging to 5 classes.
    Found 4317 images belonging to 5 classes.
```

```
from tensorflow.keras.models import Sequential
```

```
from tensorflow.keras.layers import Convolution2D,MaxPooling2D,Flatten,Dense
```

```
model = Sequential()
```

```
model.add(Convolution2D(32,(3,3),activation='relu',input_shape=(64,64,3)))
```

```
model.add(MaxPooling2D(pool_size=(2,2)))
```

```
model.add(Flatten())
```

```
model.add(Dense(300,activation='relu'))
```

```
model.add(Dense(150,activation='relu'))
```

```
model.add(Dense(4,activation='softmax'))
```

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

```
len(xtrain)
```

```
    180
```

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

```
model.fit(xtrain,
          steps_per_epoch=len(xtrain),
          epochs=5,
          validation_data=xtest,
          validation_steps=len(xtest))
```

```
Epoch 1/5
-------------------------------------------------------------------------------
InvalidArgumentError                      Traceback (most recent call last)
<ipython-input-36-9a4ef8c8eb25> in <module>
      3           epochs=5
```

```
model.save('daisy.h5')
```

```
from tensorflow.keras.models import load_model
from tensorflow.keras.preprocessing import image
import numpy as np
```

```
model=load_model("/content/daisy.h5")
```

```
img = image.load_img('/content/flowers/daisy/100080576_f52e8ee070_n.jpg',target_siz
```

```
img
```

```
x = image.img_to_array(img)
```

```
x
```

```
array([[[141., 141., 139.],
        [149., 149., 149.],
        [152., 152., 154.],
        ...,
        [162., 161., 166.],
        [154., 154., 152.],
        [153., 153., 153.]],

       [[136., 135., 131.],
        [146., 145., 143.],
        [169., 168., 174.],
        ...,
        [159., 158., 163.],
        [155., 155., 153.],
        [149., 149., 149.]],

       [[125., 125., 117.],
        [138., 140., 137.],
        [152., 152., 152.],
        ...,
        [156., 156., 156.],
        [157., 157., 155.],
        [143., 142., 140.]],

       ...,
```

```
       [[ 41.,  44.,  23.],
        [ 43.,  46.,  25.],
        [ 49.,  51.,  37.],
        ...,
        [128., 124., 121.],
        [125., 121., 118.],
        [125., 122., 117.]],

       [[ 43.,  46.,  25.],
        [ 43.,  46.,  25.],
        [ 54.,  55.,  37.],
        ...,
        [130., 126., 125.],
        [129., 125., 124.],
        [127., 123., 122.]],

       [[ 44.,  47.,  26.],
        [ 45.,  48.,  27.],
        [ 53.,  55.,  34.],
        ...,
        [137., 133., 132.],
        [133., 129., 128.],
        [130., 126., 125.]]], dtype=float32)
```

```
x.ndim
```

```
3
```

```
x = np.expand_dims(x,axis=0)
```

```
x.ndim
```

```
4
```

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

```
pred
```

```
array([[0.0000000e+00, 1.0000000e+00, 2.1982156e-25, 0.0000000e+00]],
      dtype=float32)
```

```
labels=["daisy","dandelion","rose","sunflower","tulip"]
```

```
np.argmax(pred)
```

```
1
```

```
labels[4]
```

```
    'tulip'
```

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

```
    'dandelion'
```