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

```
  inflating: flowers/tulip/8668973377_c69527db42_m.jpg
  inflating: flowers/tulip/8668974855_8389ecbdca_m.jpg
  inflating: flowers/tulip/8669794378_97dda6036f_n.jpg
  inflating: flowers/tulip/8673412732_f8fd690ee4_n.jpg
  inflating: flowers/tulip/8673416166_620fc18e2f_n.jpg
  inflating: flowers/tulip/8673416556_639f5c88f1_n.jpg
  inflating: flowers/tulip/8677713853_1312f65e71.jpg
  inflating: flowers/tulip/8681825637_837a63513a_n.jpg
  inflating: flowers/tulip/8686013485_3c4dfbfd1f_n.jpg
  inflating: flowers/tulip/8686332852_c6dcb2e86b.jpg
  inflating: flowers/tulip/8687675254_c93f50d8b0_m.jpg
  inflating: flowers/tulip/8688502760_1c8d6de921_m.jpg
  inflating: flowers/tulip/8689672277_b289909f97_n.jpg
  inflating: flowers/tulip/8690789564_394eb04982_n.jpg
  inflating: flowers/tulip/8690791226_b1f015259f_n.jpg
  inflating: flowers/tulip/8695367666_0809529eaf_n.jpg
  inflating: flowers/tulip/8695372372_302135aeb2.jpg
  inflating: flowers/tulip/8697784345_e75913d220.jpg
  inflating: flowers/tulip/8702982836_75222725d7.jpg
  inflating: flowers/tulip/8706523526_a0f161b72b.jpg
  inflating: flowers/tulip/8708209606_d3aede4801.jpg
  inflating: flowers/tulip/8708856019_f3be2353a4_n.jpg
  inflating: flowers/tulip/8710148289_6fc196a0f8_n.jpg
  inflating: flowers/tulip/8711277462_b43df5454b_m.jpg
  inflating: flowers/tulip/8712230357_1298b8513b.jpg
  inflating: flowers/tulip/8712243901_54d686319e_m.jpg
  inflating: flowers/tulip/8712244311_da8e90bf8e_n.jpg
  inflating: flowers/tulip/8712260079_c0ff42e0e2_n.jpg
  inflating: flowers/tulip/8712263493_3db76c5f82.jpg
  inflating: flowers/tulip/8712266605_3787e346cd_n.jpg
  inflating: flowers/tulip/8712267391_c756f18ee7_n.jpg
  inflating: flowers/tulip/8712267813_f7a9be2ec5.jpg
  inflating: flowers/tulip/8712268519_f4c2c39a06_n.jpg
  inflating: flowers/tulip/8712269349_2b933da2b8_n.jpg
  inflating: flowers/tulip/8712270243_8512cf4fbd.jpg
  inflating: flowers/tulip/8712270665_57b5bda0a2_n.jpg
  inflating: flowers/tulip/8712282563_3819afb7bc.jpg
  inflating: flowers/tulip/8713357842_9964a93473_n.jpg
  inflating: flowers/tulip/8713387500_6a9138b41b_n.jpg
  inflating: flowers/tulip/8713388322_e5ae26263b_n.jpg
  inflating: flowers/tulip/8713389178_66bceb71a8_n.jpg
  inflating: flowers/tulip/8713390684_041148dd3e_n.jpg
  inflating: flowers/tulip/8713391394_4b679ea1e3_n.jpg
  inflating: flowers/tulip/8713392604_90631fb809_n.jpg
  inflating: flowers/tulip/8713394070_b24561b0a9.jpg
  inflating: flowers/tulip/8713396140_5af8136136.jpg
  inflating: flowers/tulip/8713397358_0505cc0176_n.jpg
  inflating: flowers/tulip/8713397694_bcbcbba2c2_n.jpg
  inflating: flowers/tulip/8713398114_bc96f1b624_n.jpg
  inflating: flowers/tulip/8713398614_88202e452e_n.jpg
  inflating: flowers/tulip/8713398906_28e59a225a_n.jpg
  inflating: flowers/tulip/8713407768_f880df361f.jpg
```

```
inflating: flowers/tulip/8717900362_2aa508e9e5.jpg
inflating: flowers/tulip/8722514702_7ecc68691c.jpg
inflating: flowers/tulip/8723767533_9145dec4bd_n.jpg
inflating: flowers/tulip/8729501081_b993185542_m.jpg
inflating: flowers/tulip/8733586143_3139db6e9e_n.jpg
inflating: flowers/tulip/8748266132_5298a91dcf_n.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))
```

```
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_size=(64,64))
```

```
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)
```

```
1/1 [==============================] - 0s 384ms/step
```

```
pred
```

```
array([[1.1221706e-30, 6.0783266e-15, 1.0000000e+00, 2.4757697e-15]],
      dtype=float32)
```

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

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

```
2
```

```
labels[4]
```

```
'tulip'
```

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

```
'rose'
```