UNZIP FILE

```
ls
```

    [drive](#)/ [sample_data](#)/

```
cd /content/drive/MyDrive/data
```

    /content/drive/MyDrive/data

```
ls
```

    'Copy of Flowers-Dataset.zip'

```
pwd
```

    '/content/drive/MyDrive/data'

```
!unzip Flowers-Dataset.zip
```

      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
      inflating: flowers/tulip/8750288831_5e49a9f29b.jpg

      inflating: flowers/tulip/8757486380_90952c5377.jpg
      inflating: flowers/tulip/8758464923_75a5ffe320_n.jpg
      inflating: flowers/tulip/8758519201_16e8d2d781_n.jpg
      inflating: flowers/tulip/8759594528_2534c0ec65_n.jpg
      inflating: flowers/tulip/8759597778_7fca5d434b_n.jpg

```
inflating: flowers/tulip/8759601388_36e2a50d98_n.jpg
inflating: flowers/tulip/8759606166_8e475013fa_n.jpg
inflating: flowers/tulip/8759618746_f5e39fdbf8_n.jpg
inflating: flowers/tulip/8762189906_8223cef62f.jpg
inflating: flowers/tulip/8762193202_0fbf2f6a81.jpg
inflating: flowers/tulip/8768645961_8f1e097170_n.jpg
inflating: flowers/tulip/8817622133_a42bb90e38_n.jpg
inflating: flowers/tulip/8838347159_746d14e6c1_m.jpg
inflating: flowers/tulip/8838354855_c474fc66a3_m.jpg
inflating: flowers/tulip/8838914676_8ef4db7f50_n.jpg
inflating: flowers/tulip/8838975946_f54194894e_m.jpg
inflating: flowers/tulip/8838983024_5c1a767878_n.jpg
inflating: flowers/tulip/8892851067_79242a7362_n.jpg
inflating: flowers/tulip/8904780994_8867d64155_n.jpg
inflating: flowers/tulip/8908062479_449200a1b4.jpg
inflating: flowers/tulip/8908097235_c3e746d36e_n.jpg
inflating: flowers/tulip/9019694597_2d3bbedb17.jpg
inflating: flowers/tulip/9030467406_05e93ff171_n.jpg
inflating: flowers/tulip/9048307967_40a164a459_m.jpg
inflating: flowers/tulip/924782410_94ed7913ca_m.jpg
inflating: flowers/tulip/9378657435_89fabf13c9_n.jpg
inflating: flowers/tulip/9444202147_405290415b_n.jpg
inflating: flowers/tulip/9446982168_06c4d71da3_n.jpg
inflating: flowers/tulip/9831362123_5aac525a99_n.jpg
inflating: flowers/tulip/9870557734_88eb3b9e3b_n.jpg
inflating: flowers/tulip/9947374414_fdf1d0861c_n.jpg
inflating: flowers/tulip/9947385346_3a8cacea02_n.jpg
inflating: flowers/tulip/9976515506_d496c5e72c.jpg
```

```
from tensorflow.keras.preprocessing.image import ImageDataGenerator
```

```
train_data = ImageDataGenerator(rescale=1./255,zoom_range=0.2,horizontal_flip=True,vertical_f
```

```
test_data = ImageDataGenerator(rescale=1./255)
```

```
x_train = train_data.flow_from_directory('/content/drive/MyDrive/data/flowers', target_size=(
```

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

```
x_test = test_data.flow_from_directory('/content/drive/MyDrive/data/flowers', target_size=(64
```

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

```
import warnings
warnings.filterwarnings("ignore")
```

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

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

```python
model = Sequential()
```

```python
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(300,activation='relu'))
model.add(Dense(5,activation='softmax'))
```

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

```python
len(x_train)
```

```
108
```

```python
model.fit(x_train, epochs=5, validation_data=x_test, steps_per_epoch=len(x_train), validation
```

```
Epoch 1/5
108/108 [==============================] - 65s 595ms/step - loss: 1.3481 - accuracy: 0.4
Epoch 2/5
108/108 [==============================] - 65s 603ms/step - loss: 1.0818 - accuracy: 0.5
Epoch 3/5
108/108 [==============================] - 63s 586ms/step - loss: 0.9830 - accuracy: 0.6
Epoch 4/5
108/108 [==============================] - 64s 593ms/step - loss: 0.9613 - accuracy: 0.6
Epoch 5/5
108/108 [==============================] - 63s 588ms/step - loss: 0.9009 - accuracy: 0.6
<keras.callbacks.History at 0x7f3f46b68150>
```

```python
model.save("flower.h5")
```

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

```python
model=load_model("/content/drive/MyDrive/data/flower.h5")
```

```python
img=image.load_img("/content/drive/MyDrive/data/flowers/daisy/10172567486_2748826a8b.jpg",tar
```

```python
img
```

```
img = image.load_img('/content/drive/MyDrive/data/flowers/rose/11233672494_d8bf0a3dbf_n.jpg',
x = image.img_to_array(img)
x = np.expand_dims(x,axis=0)
pred = np.argmax(model.predict(x))
op = ['daisy','dandelion','rose','sunflower','tulip']
op[pred]
```
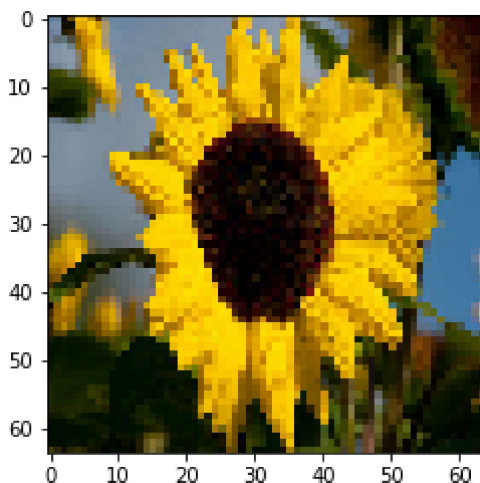
```
    1/1 [==============================] - 0s 226ms/step
    'rose'
```

```
classes=['daisy','dandelion','rose','sunflower','tulip']
def testing(img):
  img=image.load_img(img,target_size=(64,64))
  x=image.img_to_array(img)
  x=np.expand_dims(x,axis=0)
  pred=np.argmax(model.predict(x))
  return print("Predicted class as:",classes[pred])

def img_show(img):
  img1=image.load_img(img,target_size=(64,64))
  plt.imshow(img1)
```

```
#test1
img_show('/content/drive/MyDrive/data/flowers/sunflower/12471791574_bb1be83df4.jpg')
testing('/content/drive/MyDrive/data/flowers/sunflower/12471791574_bb1be83df4.jpg')
```

```
    1/1 [==============================] - 0s 55ms/step
    Predicted class as: sunflower
```
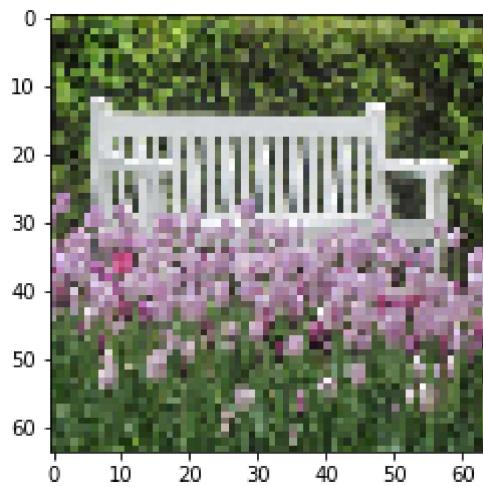


```
#test2
img_show('/content/drive/MyDrive/data/flowers/tulip/12025042086_78bafc0eb6_n.jpg')
```

```
testing('/content/drive/MyDrive/data/flowers/tulip/12025042086_78bafc0eb6_n.jpg')
```

```
1/1 [==============================] - 0s 45ms/step
Predicted class as: tulip
```

✓   0s   completed at 17:06   ● ✕