Unzip file

```
ls
```
```
    drive/  sample_data/
```

```
cd /content/drive/MyDrive/Data
```
```
    /content/drive/MyDrive/Data
```

```
ls
```
```
    Flowers-Dataset.zip
```

```
pwd
```
```
    '/content/drive/MyDrive/Data'
```

```
!unzip 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_3787e246cd_n.jpg
```

```
  inflating: flowers/tulip/8712266605_578/e346cu_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
```

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

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

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

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

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

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

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

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

```python
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')
```
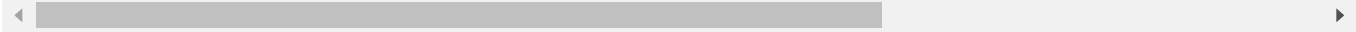
```python
len(x_train)
```

```
    108
```

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

```
    Epoch 1/5
    108/108 [==============================] - 63s 578ms/step - loss: 1.2885 - accuracy: 0.4
    Epoch 2/5
    108/108 [==============================] - 60s 560ms/step - loss: 1.0569 - accuracy: 0.5
    Epoch 3/5
    108/108 [==============================] - 60s 561ms/step - loss: 0.9707 - accuracy: 0.6
    Epoch 4/5
    108/108 [==============================] - 62s 579ms/step - loss: 0.9170 - accuracy: 0.6
    Epoch 5/5
    108/108 [==============================] - 60s 558ms/step - loss: 0.8648 - accuracy: 0.6
    <keras.callbacks.History at 0x7ff9f6de30d0>
```

```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
```

```python
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 109ms/step
'rose'
```

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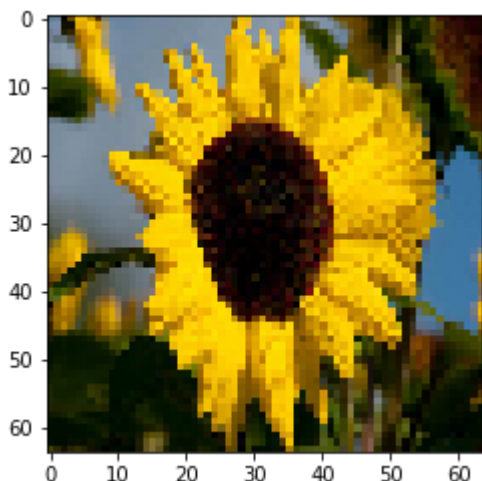
```python
#test1
img_show('/content/drive/MyDrive/Data/flowers/sunflower/12471791574_bb1be83df4.jpg')
testing('/content/drive/MyDrive/Data/flowers/sunflower/12471791574_bb1be83df4.jpg')
```

```
1/1 [==============================] - 0s 32ms/step
Predicted class as: sunflower
```
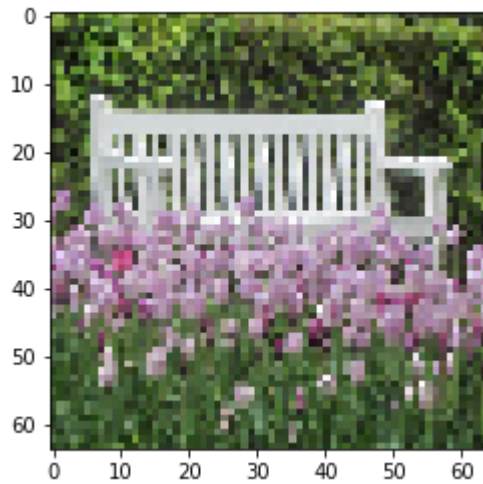


```python
#test2
img_show('/content/drive/MyDrive/Data/flowers/tulip/12025042086_78bafc0eb6_n.jpg')
```

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

```
1/1 [==============================] - 0s 22ms/step
Predicted class as: tulip
```

✓ 0s   completed at 10:51 AM