```
from zipfile import ZipFile
file_name = "Flowers.zip"

with ZipFile(file_name,'r') as zip:
  zip.extractall()
  print('Done')
```

```
Done
```

In [6]:

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

In [7]:

```
train_datagen=ImageDataGenerator(rescale=1./255,horizontal_flip=True,vertical
_flip=True,zoom_range=0.2)
```

In [8]:

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

In [10]:

```
x_train=train_datagen.flow_from_directory(r"/content/flowers",target_size=(64
,64),

class_mode="categorical",batch_size=24)
```

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

In [11]:

```
x_test=test_datagen.flow_from_directory(r"/content/flowers",target_size=(64,6
4),

class_mode="categorical",batch_size=24)
```

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

In [12]:

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

In [13]:

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

In [14]:

```
model=Sequential()
```

In [15]:

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

In [17]:

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

In [18]:

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

In [19]:

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

In [20]:

```
model.add(Dense(5,activation="softmax"))
```

In [21]:

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

In [22]:

```
len(x_train)
```

Out[22]:

```
180
```

In [23]:

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

```
Epoch 1/5
180/180 [==============================] - 53s 289ms/step - loss: 1.3252 - ac
curacy: 0.4677 - val_loss: 1.2957 - val_accuracy: 0.4971
Epoch 2/5
180/180 [==============================] - 51s 285ms/step - loss: 1.0926 - ac
curacy: 0.5617 - val_loss: 1.0207 - val_accuracy: 0.6032
Epoch 3/5
180/180 [==============================] - 53s 292ms/step - loss: 1.0192 - ac
curacy: 0.5956 - val_loss: 0.9547 - val_accuracy: 0.6421
Epoch 4/5
180/180 [==============================] - 51s 285ms/step - loss: 0.9546 - ac
curacy: 0.6278 - val_loss: 0.9099 - val_accuracy: 0.6604
Epoch 5/5
180/180 [==============================] - 51s 286ms/step - loss: 0.9053 - ac
curacy: 0.6532 - val_loss: 1.0180 - val_accuracy: 0.6176
```

Out[23]:

In [33]:

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

In [32]:

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

In [34]:

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

In [35]:

```
img=image.load_img("/content/flowers/daisy/100080576_f52e8ee070_n.jpg",target
_size=(64,64))
```

In [36]:

```
img
```

Out[36]:

In [37]:

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

In [38]:

```
x
```

Out[38]:

```
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)
```

In [39]:

```
x.ndim
```

Out[39]:

```
3
```

In [40]:

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

In [41]:

```
x.ndim
```

Out[41]:

```
4
```

In [42]:

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

In [43]:

```
pred
```

Out[43]:

```
array([[1., 0., 0., 0., 0.]], dtype=float32)
```

In [44]:

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

In [45]:

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

Out[45]:

```
0
```

In [46]:

```
labels[4]
```

Out[46]:

```
'tulip'
```

In [47]:

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

Out[47]:

```
'daisy'
```

Team ID : PNT2022TMID38863

Team Size : 4

Team Leader : ABDUL ASHIK S

Team member : MALIKHUSSAIN A

Team member : NARESHKUMAR M

Team member : VISHNU V