**from** google.colab **import** drive

drive**.**mount('/content/drive')

Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force\_remount=True).

In [14]:

**from** tensorflow.keras.models **import** Sequential

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

**from** tensorflow.keras.preprocessing.image **import** ImageDataGenerator **as** idm

**import** numpy **as** np

In [15]:

*# Creating augmentation on training variable*

train\_flowers**=**idm(rescale**=**1.**/**255,zoom\_range**=**0.2,horizontal\_flip**=True**)

*# Passing training data to train variable*

Xtrain **=** train\_flowers**.**flow\_from\_directory('/content/drive/MyDrive/IBM PROJECT/Assignment 3 /Flowers-Dataset/flowers')

Found 4327 images belonging to 5 classes.

In [16]:

*# Creating augmentation on testing variable*

test\_flowers**=**idm(rescale**=**1.**/**255)

*# Passing testing data to test variable*

Xtest **=** test\_flowers**.**flow\_from\_directory('/content/drive/MyDrive/IBM PROJECT/Assignment 3 /Flowers-Dataset/flowers',target\_size**=**(76,76),class\_mode**=**'categorical',batch\_size**=**100)

Found 4327 images belonging to 5 classes.

In [17]:

Flower\_model **=** Sequential()

Flower\_model**.**add(Convolution2D(32,(3,3),activation**=**'relu',input\_shape**=**(76,76,3)))

Flower\_model**.**add(MaxPooling2D(pool\_size**=**(2,2)))

Flower\_model**.**add(Flatten())

Flower\_model**.**add(Dense(300,activation**=**'relu'))

Flower\_model**.**add(Dense(150,activation**=**'relu'))

Flower\_model**.**add(Dense(5,activation**=**'softmax'))

In [18]:

Flower\_model**.**compile(optimizer**=**'adam',loss**=**'categorical\_crossentropy',metrics**=**['accuracy'])

In [19]:

Flower\_model**.**fit(Xtrain,steps\_per\_epoch**=** len (Xtrain),epochs**=** 8,validation\_data**=**Xtest,validation\_steps**=** len (Xtest))

Epoch 1/8

---------------------------------------------------------------------------

InvalidArgumentError Traceback (most recent call last)

in

----> 1 Flower\_model.fit(Xtrain,steps\_per\_epoch= len (Xtrain),epochs= 8,validation\_data=Xtest,validation\_steps= len (Xtest))

/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py in error\_handler(\*args, \*\*kwargs)

**65** except Exception as e: # pylint: disable=broad-except

**66** filtered\_tb = \_process\_traceback\_frames(e.\_\_traceback\_\_)

---> 67 raise e.with\_traceback(filtered\_tb) from None

**68** finally:

**69** del filtered\_tb

/usr/local/lib/python3.7/dist-packages/tensorflow/python/eager/execute.py in quick\_execute(op\_name, num\_outputs, inputs, attrs, ctx, name)

**53** ctx.ensure\_initialized()

**54** tensors = pywrap\_tfe.TFE\_Py\_Execute(ctx.\_handle, device\_name, op\_name,

---> 55 inputs, attrs, num\_outputs)

**56** except core.\_NotOkStatusException as e:

**57** if name is not None:

InvalidArgumentError: Graph execution error:

Detected at node 'sequential\_1/flatten\_1/Reshape' defined at (most recent call last):

File "/usr/lib/python3.7/runpy.py", line 193, in \_run\_module\_as\_main

"\_\_main\_\_", mod\_spec)

File "/usr/lib/python3.7/runpy.py", line 85, in \_run\_code

exec(code, run\_globals)

File "/usr/local/lib/python3.7/dist-packages/ipykernel\_launcher.py", line 16, in

app.launch\_new\_instance()

File "/usr/local/lib/python3.7/dist-packages/traitlets/config/application.py", line 846, in launch\_instance

app.start()

File "/usr/local/lib/python3.7/dist-packages/ipykernel/kernelapp.py", line 612, in start

self.io\_loop.start()

File "/usr/local/lib/python3.7/dist-packages/tornado/platform/asyncio.py", line 132, in start

self.asyncio\_loop.run\_forever()

File "/usr/lib/python3.7/asyncio/base\_events.py", line 541, in run\_forever

self.\_run\_once()

File "/usr/lib/python3.7/asyncio/base\_events.py", line 1786, in \_run\_once

handle.\_run()

File "/usr/lib/python3.7/asyncio/events.py", line 88, in \_run

self.\_context.run(self.\_callback, \*self.\_args)

File "/usr/local/lib/python3.7/dist-packages/tornado/ioloop.py", line 758, in \_run\_callback

ret = callback()

File "/usr/local/lib/python3.7/dist-packages/tornado/stack\_context.py", line 300, in null\_wrapper

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 1233, in inner

self.run()

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 1147, in run

yielded = self.gen.send(value)

File "/usr/local/lib/python3.7/dist-packages/ipykernel/kernelbase.py", line 381, in dispatch\_queue

yield self.process\_one()

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 346, in wrapper

runner = Runner(result, future, yielded)

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 1080, in \_\_init\_\_

self.run()

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 1147, in run

yielded = self.gen.send(value)

File "/usr/local/lib/python3.7/dist-packages/ipykernel/kernelbase.py", line 365, in process\_one

yield gen.maybe\_future(dispatch(\*args))

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 326, in wrapper

yielded = next(result)

File "/usr/local/lib/python3.7/dist-packages/ipykernel/kernelbase.py", line 268, in dispatch\_shell

yield gen.maybe\_future(handler(stream, idents, msg))

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 326, in wrapper

yielded = next(result)

File "/usr/local/lib/python3.7/dist-packages/ipykernel/kernelbase.py", line 545, in execute\_request

user\_expressions, allow\_stdin,

File "/usr/local/lib/python3.7/dist-packages/tornado/gen.py", line 326, in wrapper

yielded = next(result)

File "/usr/local/lib/python3.7/dist-packages/ipykernel/ipkernel.py", line 306, in do\_execute

res = shell.run\_cell(code, store\_history=store\_history, silent=silent)

File "/usr/local/lib/python3.7/dist-packages/ipykernel/zmqshell.py", line 536, in run\_cell

return super(ZMQInteractiveShell, self).run\_cell(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/IPython/core/interactiveshell.py", line 2855, in run\_cell

raw\_cell, store\_history, silent, shell\_futures)

File "/usr/local/lib/python3.7/dist-packages/IPython/core/interactiveshell.py", line 2881, in \_run\_cell

return runner(coro)

File "/usr/local/lib/python3.7/dist-packages/IPython/core/async\_helpers.py", line 68, in \_pseudo\_sync\_runner

coro.send(None)

File "/usr/local/lib/python3.7/dist-packages/IPython/core/interactiveshell.py", line 3058, in run\_cell\_async

interactivity=interactivity, compiler=compiler, result=result)

File "/usr/local/lib/python3.7/dist-packages/IPython/core/interactiveshell.py", line 3249, in run\_ast\_nodes

if (await self.run\_code(code, result, async\_=asy)):

File "/usr/local/lib/python3.7/dist-packages/IPython/core/interactiveshell.py", line 3326, in run\_code

exec(code\_obj, self.user\_global\_ns, self.user\_ns)

File "", line 1, in

Flower\_model.fit(Xtrain,steps\_per\_epoch= len (Xtrain),epochs= 8,validation\_data=Xtest,validation\_steps= len (Xtest))

File "/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py", line 64, in error\_handler

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/training.py", line 1409, in fit

tmp\_logs = self.train\_function(iterator)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/training.py", line 1051, in train\_function

return step\_function(self, iterator)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/training.py", line 1040, in step\_function

outputs = model.distribute\_strategy.run(run\_step, args=(data,))

File "/usr/local/lib/python3.7/dist-packages/keras/engine/training.py", line 1030, in run\_step

outputs = model.train\_step(data)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/training.py", line 889, in train\_step

y\_pred = self(x, training=True)

File "/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py", line 64, in error\_handler

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/training.py", line 490, in \_\_call\_\_

return super().\_\_call\_\_(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py", line 64, in error\_handler

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/base\_layer.py", line 1014, in \_\_call\_\_

outputs = call\_fn(inputs, \*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py", line 92, in error\_handler

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/sequential.py", line 374, in call

return super(Sequential, self).call(inputs, training=training, mask=mask)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/functional.py", line 459, in call

inputs, training=training, mask=mask)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/functional.py", line 596, in \_run\_internal\_graph

outputs = node.layer(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py", line 64, in error\_handler

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/engine/base\_layer.py", line 1014, in \_\_call\_\_

outputs = call\_fn(inputs, \*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/utils/traceback\_utils.py", line 92, in error\_handler

return fn(\*args, \*\*kwargs)

File "/usr/local/lib/python3.7/dist-packages/keras/layers/reshaping/flatten.py", line 98, in call

return tf.reshape(inputs, flattened\_shape)

Node: 'sequential\_1/flatten\_1/Reshape'

Input to reshape is a tensor with 16516096 values, but the requested shape requires a multiple of 43808

[[{{node sequential\_1/flatten\_1/Reshape}}]] [Op:\_\_inference\_train\_function\_3041]

In [20]:

Flower\_model**.**save('Flower.h5')

In [21]:

**from** tensorflow.keras.preprocessing **import** image

In [39]:

test\_img**=**image**.**load\_img('/content/drive/MyDrive/IBM PROJECT/Assignment 3 /Flowers-Dataset/flowers/rose/10090824183\_d02c613f10\_m.jpg',target\_size**=**(76,76))

test\_img

Out[39]:

In [40]:

x**=**image**.**img\_to\_array(test\_img)

x**=**np**.**expand\_dims(x,axis**=**0)

predicted**=**np**.**argmax(Flower\_model**.**predict(x))

Prediction\_category**=**['daisy','dandelion','rose','sunflower','tulip']

Prediction\_category[predicted]

1/1 [==============================] - 0s 32ms/step

Out[40]:

'rose'

In [43]:

test\_img1**=**image**.**load\_img('/content/drive/MyDrive/IBM PROJECT/Assignment 3 /Flowers-Dataset/flowers/dandelion/10200780773\_c6051a7d71\_n.jpg',target\_size**=**(76,76))

test\_img1

Out[43]:

In [44]:

x**=**image**.**img\_to\_array(test\_img1)

x**=**np**.**expand\_dims(x,axis**=**0)

predicted**=**np**.**argmax(Flower\_model**.**predict(x))

Prediction\_category[predicted]

1/1 [==============================] - 0s 28ms/step

Out[44]:

'tulip'