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

```
  inflating: flowers/tulip/8712270243_8512c14bd.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_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))
```

```
      3           epochs=5,
      4           validation_data=xtest,
----> 5           validation_steps=len(xtest))
```

1 frames

```
/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 'categorical_crossentropy/softmax_cross_entropy_with_logits'
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 <module>
      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
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
```

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

```
packages/IPython/core/interactiveshell.py", line 3249, in run_ast_nodes
```

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

```
      validation_steps=len(xtest))
```

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

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

```
img = image.load_img('/content/flowers/daisy/100080576_f52e8ee070_n.jpg',target_size=(64,6
```

```
      tmp_logs = self.train_function(iterator)
```

```
img
```

```
1030 in run_step
```

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

```
890 in train_step
```

```
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
```