```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
[ ] from google.colab import files
    uploaded = files.upload()
```

```
[ ] ls
```

```
drive/  sample_data/
```

```
[ ] cd /content/drive/MyDrive/New folder
```

```
/content/drive/MyDrive/New folder
```

```
[ ] ls
```

```
Flowers-Dataset.zip
```

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

```
Archive:  Flowers-Dataset.zip
  inflating: flowers/daisy/100080576_f52e8ee070_n.jpg
  inflating: flowers/daisy/10140303196_b88d3d6cec.jpg
  inflating: flowers/daisy/10172379554_b296050f82_n.jpg
  inflating: flowers/daisy/10172567486_2748826a8b.jpg
  inflating: flowers/daisy/10172636503_21bededa75_n.jpg
  inflating: flowers/daisy/102841525_bd6628ae3c.jpg
  inflating: flowers/daisy/10300722094_28fa978807_n.jpg
  inflating: flowers/daisy/1031799732_e7f4008c03.jpg
  inflating: flowers/daisy/10391248763_1d16681106_n.jpg
  inflating: flowers/daisy/10437754174_22ec990b77_m.jpg
  inflating: flowers/daisy/10437770546_8bb6f7bdd3_m.jpg
  inflating: flowers/daisy/10437929963_bc13eebe0c.jpg
  inflating: flowers/daisy/10466290366_cc72e33532.jpg
  inflating: flowers/daisy/10466558316_a7198b87e2.jpg
  inflating: flowers/daisy/10555749515_13a12a026e.jpg
  inflating: flowers/daisy/10555815624_dc211569b0.jpg
  inflating: flowers/daisy/10555826524_423eb8bf71_n.jpg
  inflating: flowers/daisy/10559679065_50d2b16f6d.jpg
  inflating: flowers/daisy/105806915_a9c13e2106_n.jpg
  inflating: flowers/daisy/10712722853_5632165b04.jpg
  inflating: flowers/daisy/107592979_aaa9cdfe78_m.jpg
  inflating: flowers/daisy/10770585085_4742b9dac3_n.jpg
```

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

```
[ ] train_datagen = ImageDataGenerator(rescale=1./255,zoom_range = 0.2,horizontal_flip =True,vertical_flip =False)
```

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

```
[ ] x_train = train = train_datagen.flow_from_directory(r"/content/drive/MyDrive/New folder/flowers/daisy",target_size = (10,10),class_mode ='categorical
```

```
Found 0 images belonging to 0 classes.
```

```
[ ] x_test = test_datagen.flow_from_directory(r"/content/drive/MyDrive/New folder/flowers/rose",target_size = (1,5),class_mode ='categorical',batch_size=
```

```
Found 0 images belonging to 0 classes.
```

```
[ ] x_train.class_indices
```

```
{}
```

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

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

```
[ ] model= Sequential()
```

```
[ ] model.add(Convolution2D(32,(3,3),input_shape=(64,64,3),activation = 'relu')) #Feature Map
```

```
[ ] model.add(MaxPooling2D(pool_size = (2,2)))  #Pooled Matrix
```

```
[ ] model.add(Flatten())
```

```
[ ] model.summary()
```

```
Model: "sequential"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d (Conv2D)             (None, 62, 62, 32)        896

 max_pooling2d (MaxPooling2D  (None, 31, 31, 32)       0
 )

 flatten (Flatten)           (None, 30752)             0

=================================================================
Total params: 896
Trainable params: 896
Non-trainable params: 0
_________________________________________________________________
```

```
[ ] 32*(3*3*3+1)
```

```
896
```

```
[ ] model.add(Dense(300, activation = 'relu'))
    model.add(Dense(150,activation ='relu'))
```

```
[ ] model.add(Dense(4,activation='softmax'))
```

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

```
[ ] len(x_train)
```

```
0
```

```
[ ] 1238/24
```

```
51.583333333333336
```

```
[ ] len(x_test)
```

```
0
```

```
[ ] 326/24
```

```
13.583333333333334
```

```
[ ] ls
```

```
flowers/  Flowers-Dataset.zip
```

```
[ ] model.save('flowers.h5')
```

```
[ ] ls
```

```
flowers/  Flowers-Dataset.zip  flowers.h5
```

```
[ ] import numpy as np
```

```
[ ] from tensorflow.keras.models import load_model
```

```
[ ] from tensorflow.keras.preprocessing import image
```

```
[ ] model = load_model('flowers.h5')
```

```
[ ] pwd
```

```
'/content/drive/MyDrive/New folder'
```

```
[ ] img = image.load_img(r'/content/drive/MyDrive/New folder/flowers/daisy/43474673_7bb4465a86.jpg')
```

```
[ ] img
```

```
[ ] img = image.load_img(r'/content/drive/MyDrive/New folder/flowers/daisy/43474673_7bb4465a86.jpg',target_size=(64,64))
```

```
[ ] img
```

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

```
[ ] x
```

```
array([[[ 74.,  83.,  66.],
        [ 51.,  68.,  49.],
        [ 40.,  57.,  38.],
        ...,
        [164., 181., 201.],
        [ 64.,  75.,  61.],
        [ 51.,  57.,  21.]],

       [[ 66.,  83.,  64.],
        [ 50.,  73.,  47.],
        [ 43.,  61.,  37.],
        ...,
        [ 84.,  83.,  65.],
        [ 70.,  78.,  21.],
        [ 55.,  62.,  18.]],

       [[ 66.,  85.,  53.],
        [ 56.,  82.,  47.],
        [ 49.,  74.,  44.],
        ...,
        [ 91.,  87.,  13.],
        [ 77.,  83.,  11.],
        [ 76.,  80.,  19.]],

       ...,
```

```
[ ]         ...,

            [[  3.,   1.,  15.],
             [  4.,   2.,  16.],
             [  5.,   3.,  17.],
             ...,
             [ 22.,  38.,  27.],
             [ 22.,  38.,  27.],
             [ 18.,  34.,  23.]],

            [[  3.,   1.,  15.],
             [  3.,   1.,  15.],
             [  3.,   1.,  15.],
             ...,
             [ 24.,  40.,  29.],
             [ 21.,  37.,  26.],
             [ 19.,  35.,  24.]],

            [[  3.,   1.,  15.],
             [  3.,   1.,  15.],
             [  3.,   1.,  15.],
             ...,
             [ 24.,  40.,  29.],
             [ 20.,  36.,  25.],
             [ 18.,  34.,  24.]]], dtype=float32)
```

```
[ ] x.shape
```

```
(64, 64, 3)
```

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

```
[ ] y = np.argmax(model.predict(x), axis=1)
```

```
[ ] y
```

```
array([1])
```

```
[ ] x_train.class_indices
```

```
{}
```

```
[ ] index = ['daisy','dandelion','rose','sunflower','tulip']
```

```
[ ] index[y[0]]
```

```
'dandelion'
```

```
[ ] index[3]
```

```
'sunflower'
```