

ASSIGNMENT 3, NAME: JAMESRAJ A, ROLL NUMBER: 110819106002

```
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_remo



```
ls
```

```
drive/ sample_data/
```

```
cd /content/drive/MyDrive/IBM
```

```
/content/drive/MyDrive/IBM
```

```
pwd
```

```
'/content/drive/MyDrive/IBM'
```

```
!unzip flowers.zip
```

```
unzip: cannot find or open flowers.zip, flowers.zip.zip or flowers.zip.ZIP.
```

Image Augmentation

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

```
train_datagen = ImageDataGenerator(rescale = 1./255, zoom_range= 0.3, horizontal_flip=True, vertical_flip=True)
```

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

```
x_train = train_datagen.flow_from_directory(r"/content/drive/MyDrive/IBM/Images",target_size= (64,64),class_mode= "categoric
```

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

```
x_test = test_datagen.flow_from_directory(r"/content/drive/MyDrive/IBM/Images",target_size= (64,64),class_mode= "categorical
```

```
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),activation="relu",strides=(1, 1),input_shape =(64,64,3)))
```

```
model.add(MaxPooling2D(strides=(1, 1)))
```

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

```
model.summary()
```

```
Model: "sequential"
```

| Layer (type) | Output Shape | Param # |
|------------------------------|--------------------|---------|
| ===== | | |
| conv2d (Conv2D) | (None, 62, 62, 32) | 896 |
| max_pooling2d (MaxPooling2D) | (None, 61, 61, 32) | 0 |
|) | | |

```
flatten (Flatten)          (None, 119072)          0
```

```
=====
```

```
Total params: 896
```

```
Trainable params: 896
```

```
Non-trainable params: 0
```

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

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

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

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

```
len(x_train)
```

```
0
```

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

```
model.fit(x_train,epochs = 10,steps_per_epoch=len(x_train),validation_data=x_test,validation_steps=len(x_test))
```

```
import numpy as np
```

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

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

```
model = load_model("flower.h5")
```

```
img = image.load_img(r"/content/drive/MyDrive/IBM/Images/Flower 1.jpg")
```

img



```
img = image.load_img(r"/content/drive/MyDrive/IBM/Images/Flower 3.jpg",target_size=(400,400))
```

img



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

x

```
array([[ 9., 52., 120.],
       [ 9., 52., 120.],
       [10., 53., 121.],
       ...,
       [12., 40., 87.],
       [64., 92., 139.],
       [24., 52., 99.]],

      [[ 9., 52., 120.],
       [ 9., 52., 120.],
       [10., 53., 121.]])
```

```

... ,
[ 8., 38., 98.],
[ 6., 36., 96.],
[ 19., 49., 109.]],

[[ 9., 52., 120.],
[ 9., 52., 120.],
[ 10., 53., 121.],
... ,
[ 1., 35., 106.],
[ 10., 44., 115.],
[ 0., 34., 105.]],

... ,

[[ 24., 82., 146.],
[ 24., 82., 146.],
[ 24., 79., 144.],
... ,
[ 17., 70., 136.],
[ 17., 70., 136.],
[ 17., 70., 136.]],

[[ 24., 82., 146.],
[ 24., 82., 146.],
[ 26., 81., 146.],
... ,
[ 15., 68., 134.],
[ 15., 68., 134.],
[ 15., 68., 134.]],

[[ 24., 82., 146.],
[ 24., 82., 146.],
[ 25., 80., 145.],
... ,
[ 17., 70., 136.],
[ 17., 70., 136.],
[ 17., 70., 136.]]], dtype=float32)

```

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

x

```

array([[[[ 9., 52., 120.],
          [ 9., 52., 120.],
          [10., 53., 121.],
          ...,
          [12., 40., 87.],
          [64., 92., 139.],
          [24., 52., 99.]],

        [[ 9., 52., 120.],
          [ 9., 52., 120.],
          [10., 53., 121.],
          ...,
          [ 8., 38., 98.],
          [ 6., 36., 96.],
          [19., 49., 109.]],

        [[ 9., 52., 120.],
          [ 9., 52., 120.],
          [10., 53., 121.],
          ...,
          [ 1., 35., 106.],
          [10., 44., 115.],
          [ 0., 34., 105.]],

        ...,

        [[24., 82., 146.],
          [24., 82., 146.],
          [24., 79., 144.],
          ...,
          [17., 70., 136.],
          [17., 70., 136.],
          [17., 70., 136.]],

        [[24., 82., 146.],
          [24., 82., 146.],
          [26., 81., 146.],
          ...,
          [15., 68., 134.],
          [15., 68., 134.],

```

```
[ 15.,  68., 134.]],
[[ 24.,  82., 146.],
 [ 24.,  82., 146.],
 [ 25.,  80., 145.],
 ...,
 [ 17.,  70., 136.],
 [ 17.,  70., 136.],
 [ 17.,  70., 136.] ]], dtype=float32)
```

```
pred = (r"/content/drive/MyDrive/IBM/Images")
```

```
x_test.class_indices
```

```
{}
```

```
pred
```

```
index = ["","images"]
```

```
img = image.load_img(r"/content/drive/MyDrive/IBM/Images/Flower 5.jpg",target_size=(500,500))
```

```
img
```




```
img = image.load_img(r"/content/drive/MyDrive/IBM/Images/Flower 2.jpg")
```

```
img
```



[Colab paid products](#) - [Cancel contracts here](#)

 0s completed at 10:22 AM

 