Assignment -3   
Build CNN Model for Classification Of Flowers

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| Assignment submission | 11October 2022 |
| Student Name | Absana Rahiml M |
| Student Roll Number | 951919CS006 |
| Maximum Marks | 2 Marks |

1. Download the dataset: Dataset

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

Mounted at /content/drive

>cd /content/drive/MyDrive

/content/drive/MyDrive

>lunzip Flowers-Dataset.zip

Archive: Flowers-Dataset.zip  
inflating: flowers/daisy/100080576\_f52e8ee070\_n.jpg  
inflating: flowers/daisy/ 10 1 40 30 3196b88d3décec.ipg  
\_  
inflating: flowers/daisy/10172379554 b296050£82 n.Jjpg  
inflating: flowers/daisy/ 10 17 2 5 674862748826a8b.jpg  
\_  
inflating: flowers/daisy/10172636503\_21bededa’5 n.Jjpg  
inflating: flowers/daisy/102841525 bd6628ae3c.jpg

2. Image Augmentation

from tensorflow.keras.preprocessing.image import ImageDataGenerator  
train datagen=ImageDataGenerator (rescale=1./255,zoom\_range=0.2,horizontal\_ fli  
\_  
d  
p=True, vertical flip=False)

test\_datagen=ImageDataGenerator (rescale=1./255)

3. Create Model

\_  
>X\_ train =train\_d at agen.flow\_ from directory('/content/drive/MyDrive/Flowers-  
\_  
D at aset/flowers', target \_ize=(64,64),classmode='categorical',batchsize= 2 4  
\_s  
\_  
\_s

Found 30 images belonging to 5 classes.

>Xtest= train d at agen.flow from directory('/content/drive/MyDrive/Flowers- —  
o\_f  
\_t  
\_  
D at aset/flowers', target \_ize=(64,64),classmode='categorical',batchsize= 2 4  
\_s  
\_  
\_s

Found 40 images belonging to 5 classes.

>Xtrain.cl as sindices  
\_d  
\_r

'sunflower': 3, 'tulip': 4}  
'rose': 2,  
{'daisy': 0, 'dandelion': 1,

4. Add Layers (Convolution,MaxPooling,Flatten,Dense-(Hidden Layers),Output)

from tensorflow.keras.models import Sequential  
from tensorflow.keras.layers import Dense,Convolution2D,MaxPooling2D,Flatten  
model=Sequential ()  
model.add (Convolution2D (32, (3, 3), i np ut\_hape=( 64, 64,3) ,activation="relu'))  
\_s  
model.add (MaxPooling2D (pool \_size=(2,2)))  
model.add (Flatten ())  
model. summary ()  
Model: "sequential 1"

Output Shape

Layer (type)  
convad (Conv2D)

Param #

896

(None, 62, 62, 32)

maxpooling2d (MaxPooling2D (None, 31, 31, 32)  
)

0

flatten (Flatten)

(None, 30752)

0

896   
Total param:  
Trainable params: 896  
Non-trainable params: 0

model.add (Dense (300,activation="relu'))  
model.add (Dense (150,activation="relu'))  
model.add (Dense (4,activation="'softmax"'))

5. Compile The Model  
model.compile (loss='categorical crossentropy',optimizer='adam',metrics=  
lcro  
['accuracy'])

6. Fit The Model  
model. fit generator (Xtrain,stepsper\_poch=len(Xtrain ) ,validationdata=X\_e  
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\_  
\_t  
\_ep  
\_pe  
\_r  
st,validation\_teps=len(Xtest ) ,epochs=1 0 )  
\_t  
\_s

7. Save The Model  
model.save ('flowersss.h5")

8. Test The Model

import numpy as np

from tensorflow.keras. models import load model  
from tensorflow.keras.preprocessing import image

model =load model ('/content/drive/MyDrive/flowersss')

img =image.load img("/content/drive/MyDrive/flowers/daisy/15321086603cc9f2f36  
\_  
Sieg")   
img



> img =image.load img("/content/drive/MyDrive/flowers/daisy/15321086603cc9f2f3  
\_  
\_  
6.jpg", target\_size=(64,64 ) )  
img

KE’ E ]  
®   
® E ]  
E:

>X= image . img to\_rray (img)  
g\_\_a

>X

, [50., 41.,  
array ([[[13., 20., 13.], [14., 23., 18.], [20., 27., 20.1],  
32.1], [46., 37., 28.1, [17., 19., 14.1], ([[18., 20., 15.], [25., 31., 29.1,  
..., [46., 48., 34.1, [50., 41., 32.1, [ 3., 5., 4.11,  
[29., 31., 28.1,  
[(14., 20., 16.1, ([17., 22., 16.1, [18., 20., 17.], ..., [52., 50., 38.1,  
..., [[2l., 26., 20.1, [40., 40., 32.1,  
[50., 47., 38.1, [21., 23., 20.1],  
[34., 35., 30.1, ..., [21., 28., 21.], (11., 15., 14.], [22., 21., 17.1],  
[(26., 31., 27.1, [53., 53., 43.1, [32., 37., 31.1, ..., [28., 34., 24.1,  
(21., 31., 22.1, [50., 50., 38.11, [[34., 36., 31.], [43., 46., 35.], [24.,