Assignment -3

Problem Statement :- Build CNN Model for Classification Of Flowers

Assignment Date	10 September 2022
Student name	SHANMUGAM M
Student roll number	**112519106004**
Maximum marks	2 marks

```
import tensorflow as tf

from keras.preprocessing.image import ImageDataGenerator
#Augmenting the input training images train_datagen
= ImageDataGenerator(
        rescale=1./255,
shear_range=0.2,
zoom_range=0.2,
horizontal_flip=True)



training_set = train_datagen.flow_from_directory(
        'training',
target_size=(64, 64),
batch_size=32,
class_mode='categorical')



test_datagen = ImageDataGenerator(
        rescale=1./255)

test_data = test_datagen.flow_from_directory(
        'Testing',
```

```
    target_size=(64, 64),
batch_size=32,
class_mode='categorical')
#Building the model cnn =
tf.keras.models.Sequential()
#Adding convolution layer
cnn.add(tf.keras.layers.Conv2D(fil
ters=64,kernel_size=3,activation
="relu",input_shape =[64,64,3]))

cnn.add(tf.keras.layers.MaxPool2D(pool_size = 2,strides=2))
cnn.add(tf.keras.layers.Conv2D(filters=64,kernel_size=3,activation ="relu"))

cnn.add(tf.keras.layers.MaxPool2D(pool_size = 2,strides=2)) cnn.add(tf.keras.layers.Dropout(0.5))
# Flattening the layers  cnn.add(tf.keras.layers.Flatten()) #
Adding dense layers(Hidden Layers)
cnn.add(tf.keras.layers.Dense(units=128 ,activation ="relu"))
cnn.add(tf.keras.layers.Dense(units=5,activation="softmax"))
#compilation of the neural network model
cnn.compile(optimizer="rmsprop",loss="categorical_crossentropy" ,metrics =["accuracy"])
#Fitting the neural network model and training it cnn.fit(x =
training_set , validation_data =test_data , epochs = 30 ) cnn.fit(x =
training_set , validation_data =test_data , epochs = 30 )
#preprocess the test image import numpy as np image =
tf.keras.preprocessing.image.load_img("prediction/tu.jpg",target_size=(64,64))
input_arr = tf.keras.preprocessing.image.img_to_array(image) input_arr =
np.expand_dims(input_arr,axis=0) result = cnn.predict(input_arr)
training_set.class_indices print(result)
```

```
#Mapping the result to the values
if result[0][0] == 1:
print("daisy") elif result[0][1] ==
1:    print("dandelion") elif
result[0][2] == 1:    print("rose")
elif result[0][3] ==1:
print("suflower") elif result[0][4]
== 1:    print("tulip")
```