Assignment-3

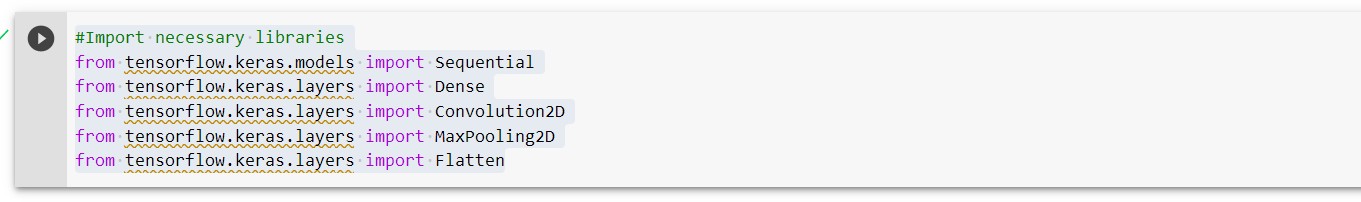
Convolution Neural Network

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| Assignment Date | 6 October 2022 |
| Team ID | PNT2022TMI34120 |
| Project name | Project - AI - based localization and  classification of skin disease with erythema |
| Maximum Marks | 2Marks |

# #Import necessary libraries

from tensorflow.keras.models import Sequential from tensorflow.keras.layers import Dense

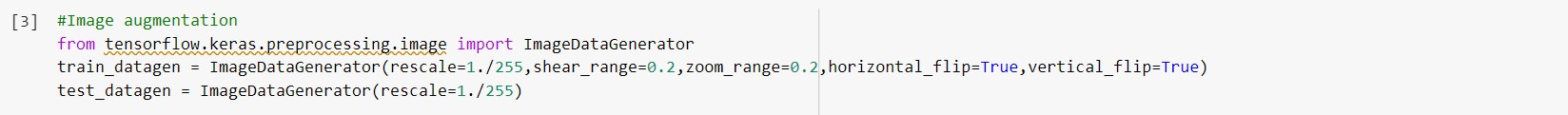
from tensorflow.keras.layers import Convolution2D from tensorflow.keras.layers import MaxPooling2D from tensorflow.keras.layers import Flatten



# #Image augmentation

from tensorflow.keras.preprocessing.image import ImageDataGenerator train\_datagen = ImageDataGenerator(rescale=1./255,shear\_range=0.2,zoom\_range=0.2,horizontal\_fl ip=True,vertical\_flip=True)

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



# #Dataset

x\_train=train\_datagen.flow\_from\_directory(r"E:\Flowers\Training",target\_size=( 128,128),batch\_size=32,class\_mode="categorical") x\_test=test\_datagen.flow\_from\_directory(r"E:\Flowers\Testing",target\_size=(128

,128),batch\_size=32,class\_mode="categorical")

x\_train.class\_indices



# #Add layers

model = Sequential()

**#Convolution layer** model.add(Convolution2D(32,(3,3),input\_shape=(128,128,3),activation='relu')) **#Maxpooling layer**

model.add(MaxPooling2D(pool\_size=(2,2)))

**#Flatten layer** model.add(Flatten()) **#Hidden layer**

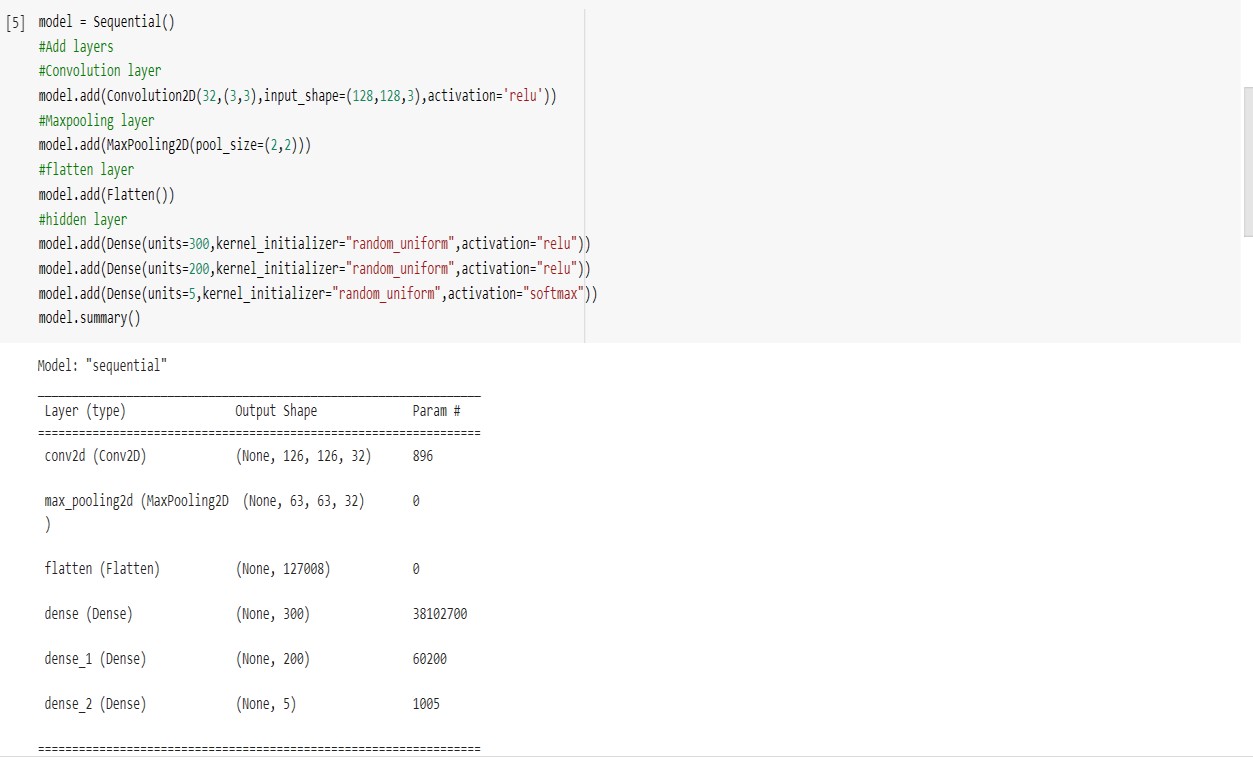
model.add(Dense(units=300,kernel\_initializer="random\_uniform",activation="relu

"))

model.add(Dense(units=200,kernel\_initializer="random\_uniform",activation="relu "))

model.add(Dense(units=5,kernel\_initializer="random\_uniform",activation="softma x"))

model.summary()

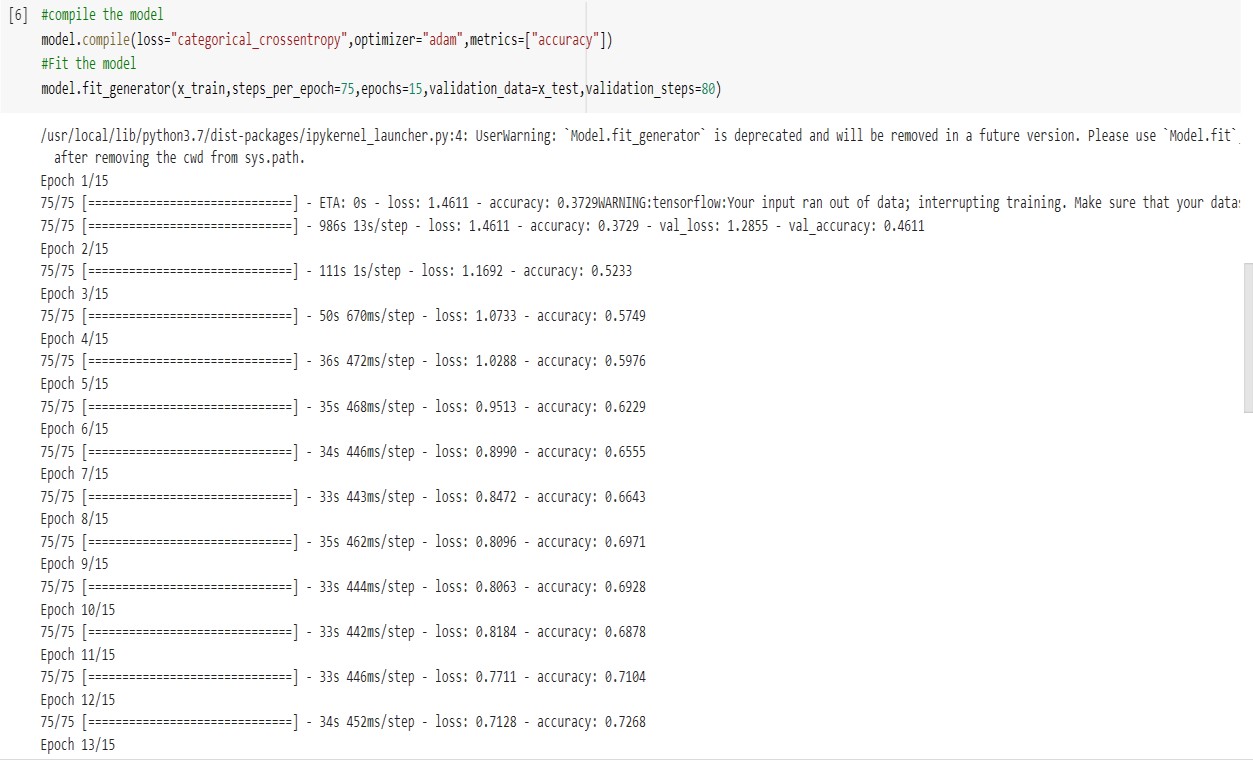


# #Compile the model

model.compile(loss="categorical\_crossentropy",optimizer="adam",metrics=["accur acy"])

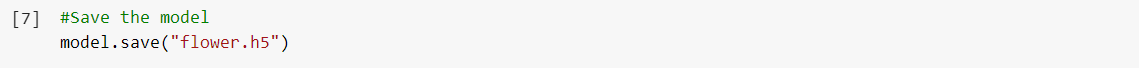
# #Fit the model

model.fit\_generator(x\_train,steps\_per\_epoch=75,epochs=15,validation\_data=x\_tes t,validation\_steps=80)



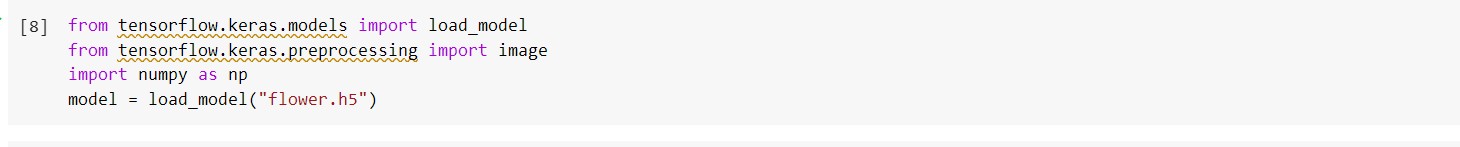
# #Save the model

model.save("flower.h5")



from tensorflow.keras.models import load\_model from tensorflow.keras.preprocessing import image import numpy as np

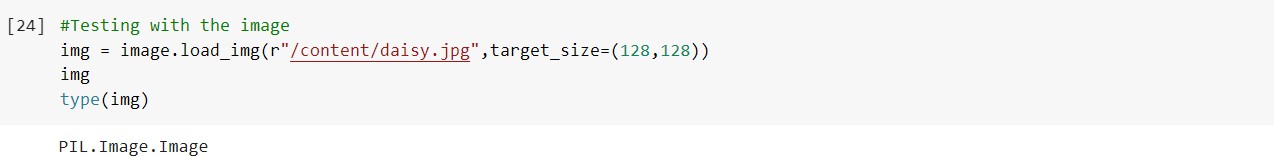
model = load\_model("Flower.h5")



# #Test the model

img = image.load\_img(r"C:\Users\hp\Downloads\rose.jpg",target\_size=(128,128)) img

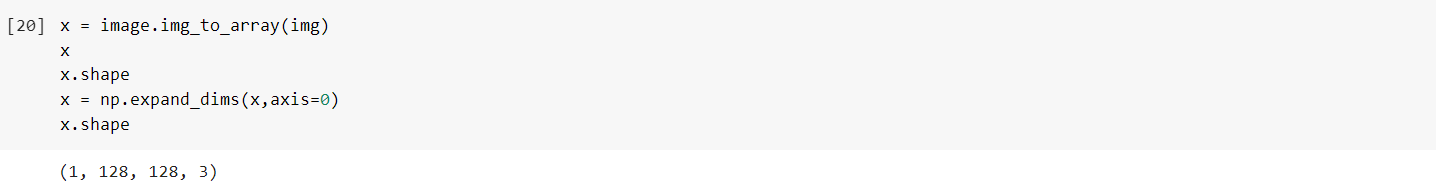
type(img)



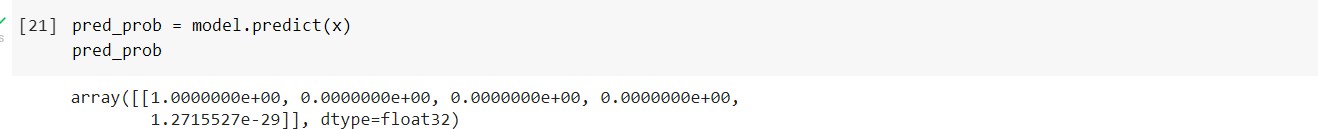
x = image.img\_to\_array(img) x

x.shape

x = np.expand\_dims(x,axis=0) x.shape



pred\_prob = model.predict(x) pred\_prob



class\_name = ["daisy","dandelion","rose","sunfower","tulip"]



pred\_id = pred\_prob.argmax(axis=1)[0] pred\_id

print("Predicted flower is",str(class\_name[pred\_id]))

