**Assignment -3**

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| Assignment Date | 01 October 2022 |
| Student Name | HEMALATHA J |
| Student Roll Number | 111519104045 |
| Maximum Marks | 2 Marks |

**Question:1**

Download the Dataset

Question-2:

Image Augmentation

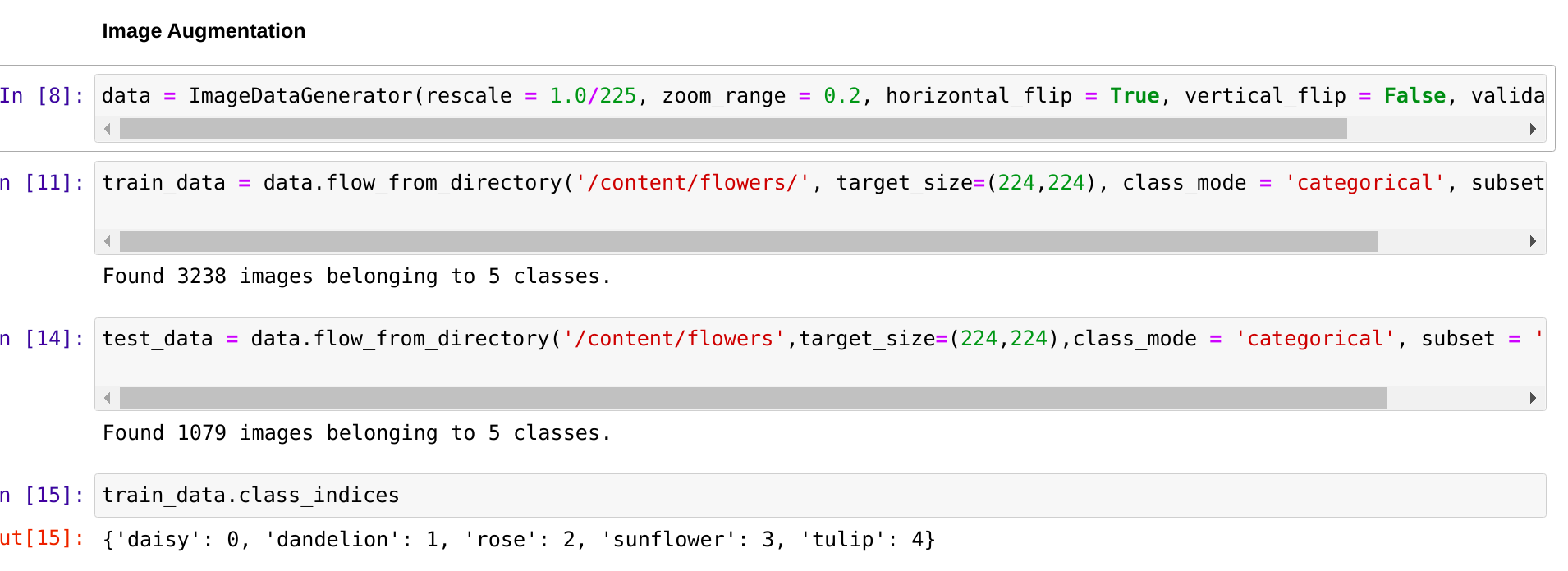
Solution:

data = ImageDataGenerator(rescale = 1.0/225, zoom\_range = 0.2, horizontal\_flip = True, vertical\_flip = False, validation\_split=0.25)

train\_data = data.flow\_from\_directory('/content/flowers/', target\_size=(224,224), class\_mode = 'categorical', subset= 'training')

test\_data = data.flow\_from\_directory('/content/flowers',target\_size=(224,224),class\_mode = 'categorical', subset = 'validation')

train\_data.class\_indices



Question-3:

Create Model

Solution :

datamodel = Sequential()



Question-4:

Add Layers

Solution:

datamodel.add(Convolution2D(32,(3,3),input\_shape=(224,224,3),activation='relu'))

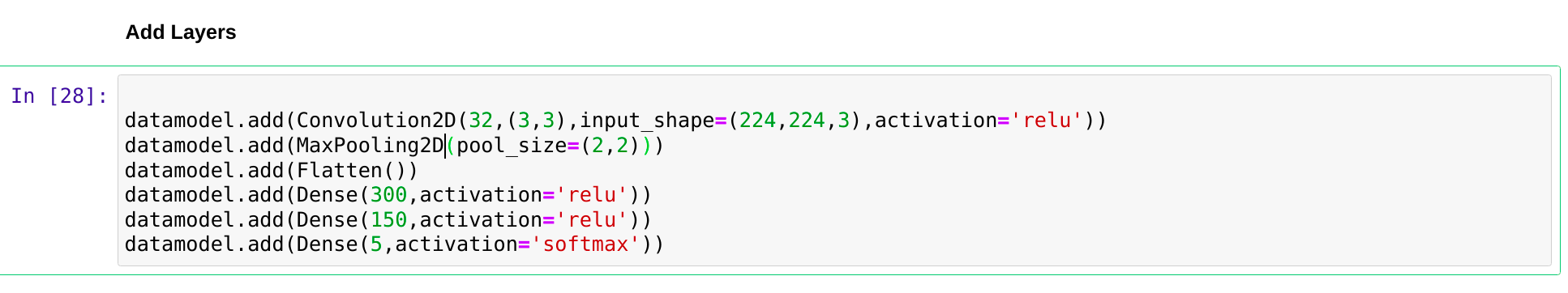
datamodel.add(MaxPooling2D(pool\_size=(2,2)))

datamodel.add(Flatten())

datamodel.add(Dense(300,activation='relu'))

datamodel.add(Dense(150,activation='relu'))

datamodel.add(Dense(5,activation='softmax'))

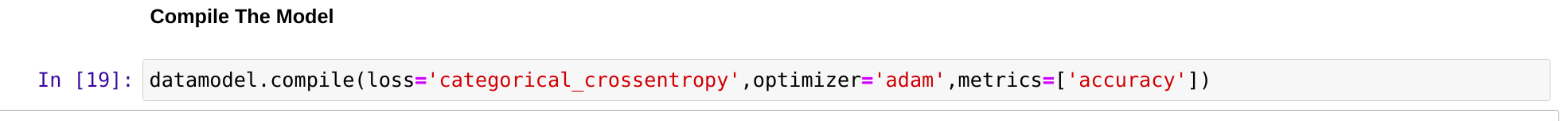


Question-5:

Compile The Model

Soltion:

datamodel.compile(loss='categorical\_crossentropy',optimizer='adam',metrics=['accuracy'])

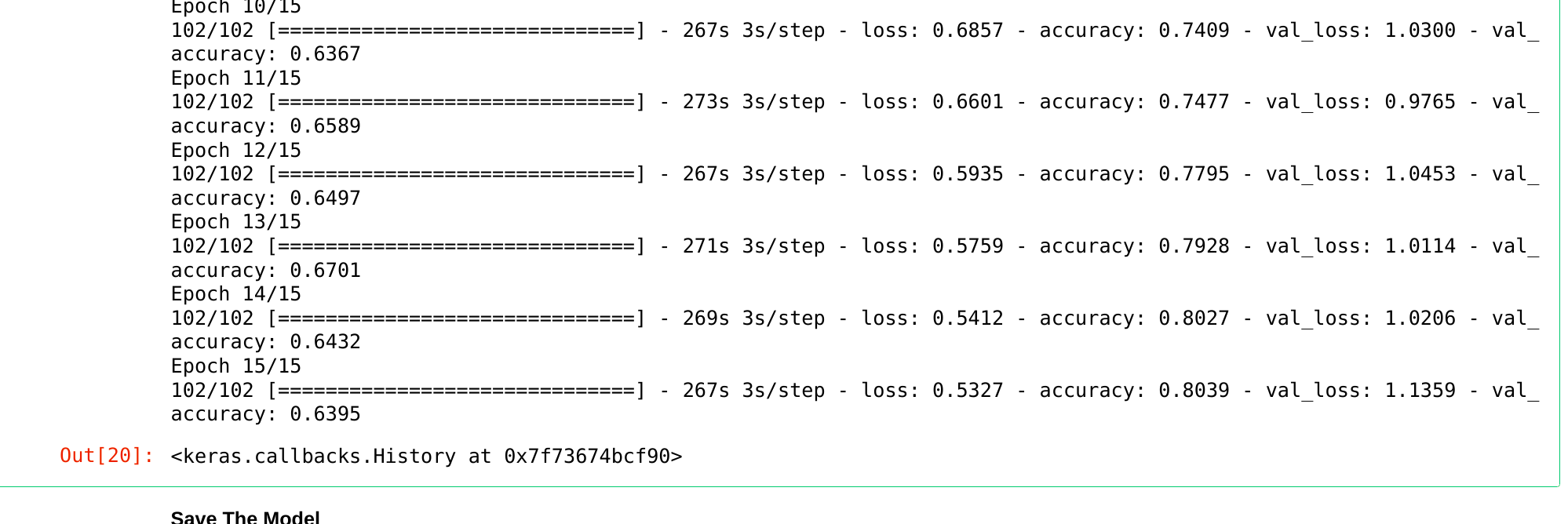
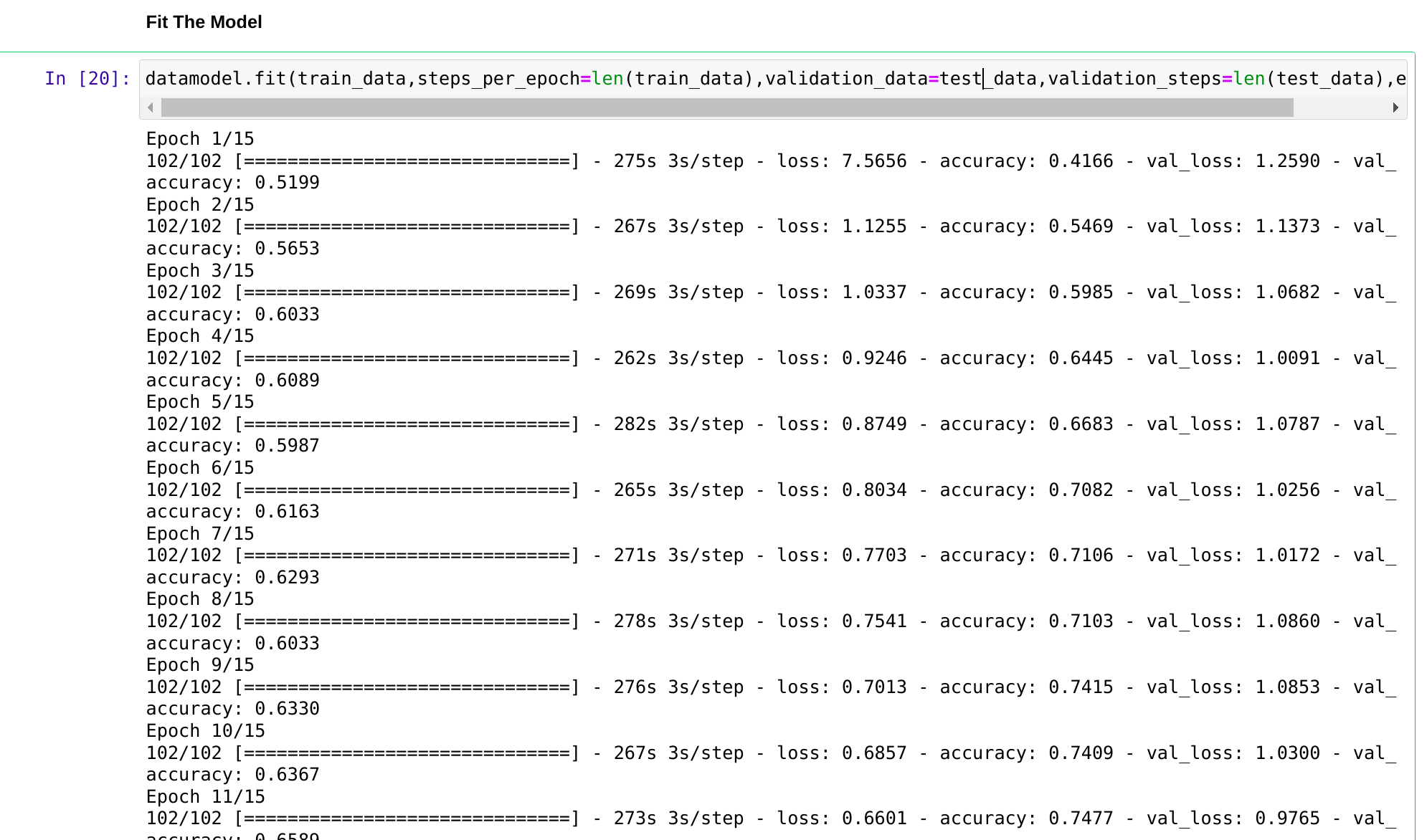


Question -6 :

Fit The Model

Solution :

datamodel.fit(train\_data,steps\_per\_epoch=len(train\_data),validation\_data=test\_data,validation\_steps=len(test\_data),epochs=15)



Question-7:

Save the model

solution :

datamodel.save('flowers.h5')



Question-8:

Test The Model

Solution:

img = image.load\_img('/content/flowers/dandelion/10437652486\_aa86c14985.jpg',target\_size=(224,224))

temp\_arr = image.img\_to\_array(img)

dim = np.expand\_dims(temp\_arr,axis=0)

temp=np.argmax(datamodel.predict(dim),axis=1)

index = ['Daisy','Dandelion','Rose','Sunflower','Tulip']

index[temp[0]]

