EARLYDETECTIONOFFORESTFIREUSINGDEEPLEARNING

MODEL

BUILDINGINITIALIZINGT

HEMODEL

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ProjectName	Project-Early detection of forest fire using deeplearning

INITIALILIZINGTHEMODEL:

kerashas2waystodefineaneuralnetwork:

- Sequential
- FunctionAPI

The Sequential class is used to define linear initializations of network layers which then,collectively, constitute a model. In our example below, we will use the Sequential constructortocreateamodel,whichwill thenhavelayersadded toit using theadd () method.

Now,willinitializeourmodel.

Importing Keras libraries

```
import keras
```

Importing ImageDataGenerator from Keras

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

Importing Keras libraries

```
[1] import keras
```

Importing ImageDataGenerator from Keras

```
[13] from matplotlib import pyplot as plt
     from keras.preprocessing.image import ImageDataGenerator
```
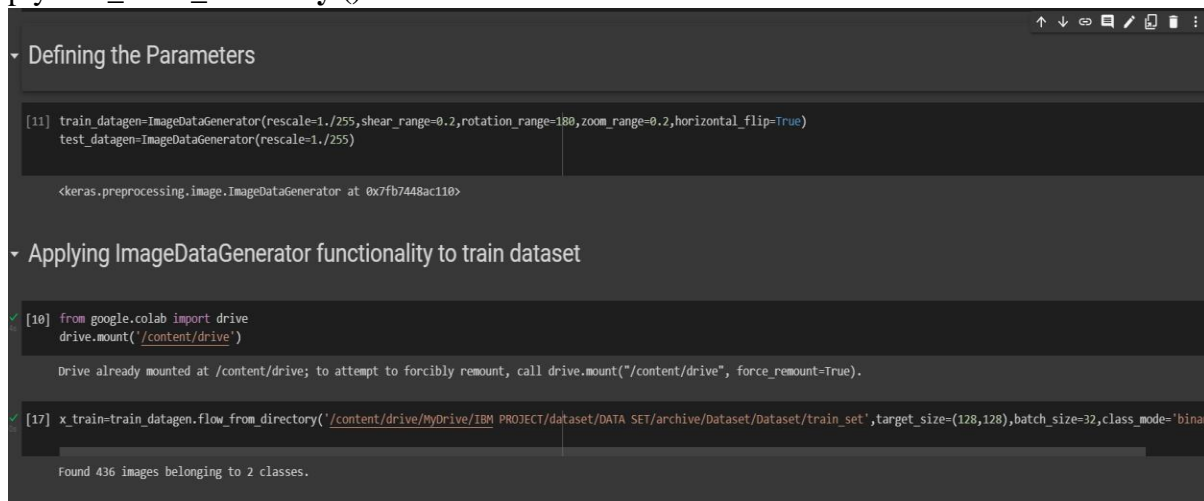
Defining the Parameters

```
train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range=0.2,horizontal_flip=True)
test_datagen=ImageDataGenerator(rescale=1./255)
```

```
<keras.preprocessing.image.ImageDataGenerator at 0x7fb7448ac110>
```

APPLYINGImageDataGeneratortotraindataset:

ply**flow_from_directory** ()methodforTrainfolder.

▾ Defining the Parameters

```
[11] train_datagen=ImageDataGenerator(rescale=1./255,shear_range=0.2,rotation_range=180,zoom_range=0.2,horizontal_flip=True)
     test_datagen=ImageDataGenerator(rescale=1./255)

     <keras.preprocessing.image.ImageDataGenerator at 0x7fb7448ac110>
```

▾ Applying ImageDataGenerator functionality to train dataset

```
[10] 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_remount=True).

[17] x_train=train_datagen.flow_from_directory('/content/drive/MyDrive/IBM PROJECT/dataset/DATA SET/archive/Dataset/Dataset/train_set',target_size=(128,128),batch_size=32,class_mode='binar

     Found 436 images belonging to 2 classes.
```
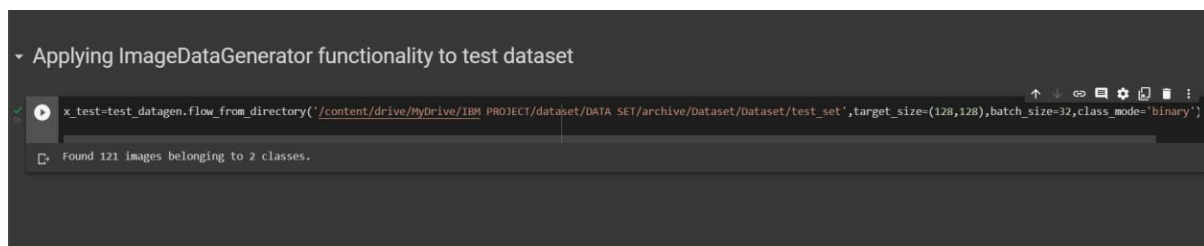
APPLYINGImageDataGeneratortotestdataset:

Applyingthe**flow_from_directory**()methodfortestfolder.

▾ Applying ImageDataGenerator functionality to test dataset

```
x_test=test_datagen.flow_from_directory('/content/drive/MyDrive/IBM PROJECT/dataset/DATA SET/archive/Dataset/Dataset/test_set',target_size=(128,128),batch_size=32,class_mode='binary')

Found 121 images belonging to 2 classes.
```

IMPORTINGMODELBUILDINGLIBRARIES:

▾ Importing Model Building Libraries

```
#to define the linear Initialisation import sequential
from keras.models import Sequential
#to add layers import Dense
from keras.layers import Dense
#to create Convolutional kernel import convolution2D
from keras.layers import Convolution2D
#import Maxpooling layer
from keras.layers import MaxPooling2D
#import flatten layer
from keras.layers import Flatten
import warnings
warnings.filterwarnings('ignore')
```

INITIALIZINGTHEMODEL:

▾ Initializing the model

```
model=Sequential()
```