

EARLY DETECTION OF FOREST FIRE USING DEEP LEARNING

MODEL BUILDING

INITIALIZING THE MODEL

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Project Name	Project-Early detection of forest fire using deep learning

INITIALILIZING THE MODEL:

keras has 2 ways to define a neural network:

- Sequential
- Function API

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 constructor to create a model, which will then have layers added to it using the add () method.

Now, will initialize our model.

11/7/22, 12:35 AM

Untitled8.ipynb - Colaboratory

▼ 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
```

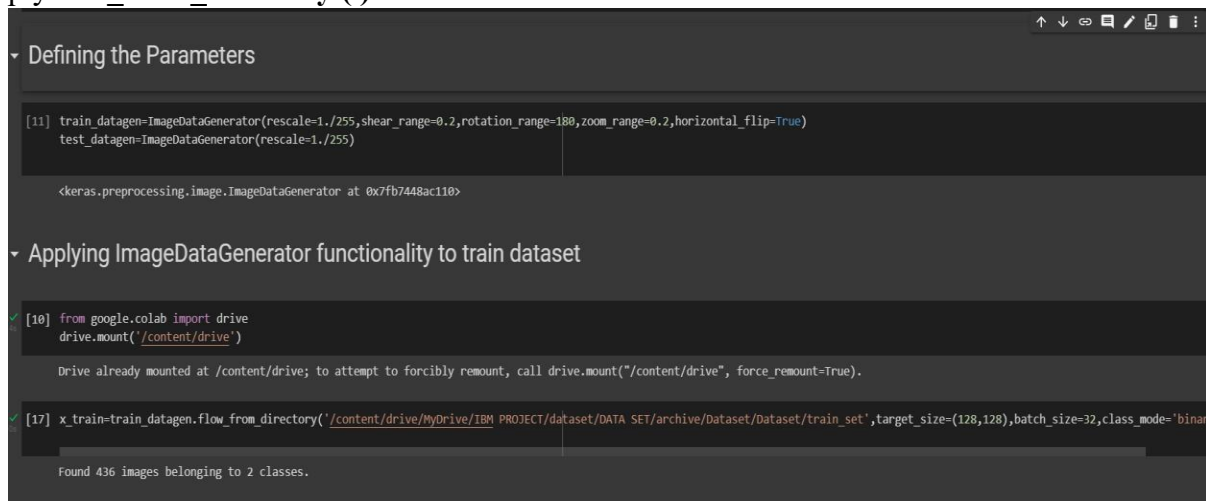
▼ Defining the Parameters

```
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>
```

APPLYING ImageDataGenerator to train dataset:

`flow_from_directory()` method for Train folder.



The screenshot shows a Jupyter notebook with two sections. The first section, 'Defining the Parameters', contains a code cell where `train_datagen` and `test_datagen` are initialized as `ImageDataGenerator` objects with parameters for rescaling, shearing, rotation, zooming, and horizontal flipping. The second section, 'Applying ImageDataGenerator functionality to train dataset', contains two code cells. The first cell mounts the Google Drive and the second cell uses `flow_from_directory` to load the training data, reporting that 436 images were found.

```
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')

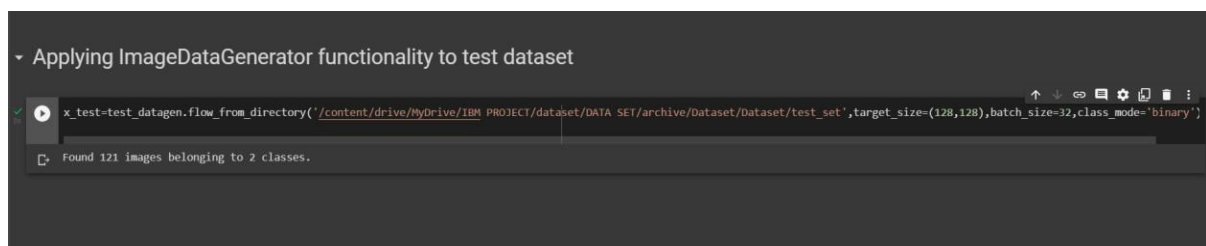
Drive already mounted at /content/drives; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

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='binary')

Found 436 images belonging to 2 classes.
```

APPLYING ImageDataGenerator to test dataset:

Applying the `flow_from_directory()` method for test folder.



The screenshot shows a Jupyter notebook with one section, 'Applying ImageDataGenerator functionality to test dataset'. It contains a code cell that uses `flow_from_directory` to load the test data, reporting that 121 images were found.

```
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.
```

IMPORTING MODEL BUILDING LIBRARIES:

11/8/22, 1:16 AM

Main code - Colaboratory

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')
```

INITIALIZING THE MODEL:

▼ Initializing the model

```
model=Sequential()
```