

EARLY DETECTION OF FOREST FIRE USING DEEP LEARNING

MODEL BUILDING

IMPORTING THE MODEL BUILDING LIBRARIES

Team ID	PNT2022TMID45404
Project Name	Project-Early detection of forest fire using deep learning

IMPORTING THE MODEL BUILDING LIBRARIES:

Import the libraries that are required to initialize the neural network layer, create and add different layers to the neural network model. The below libraries are imported and executed.

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
```

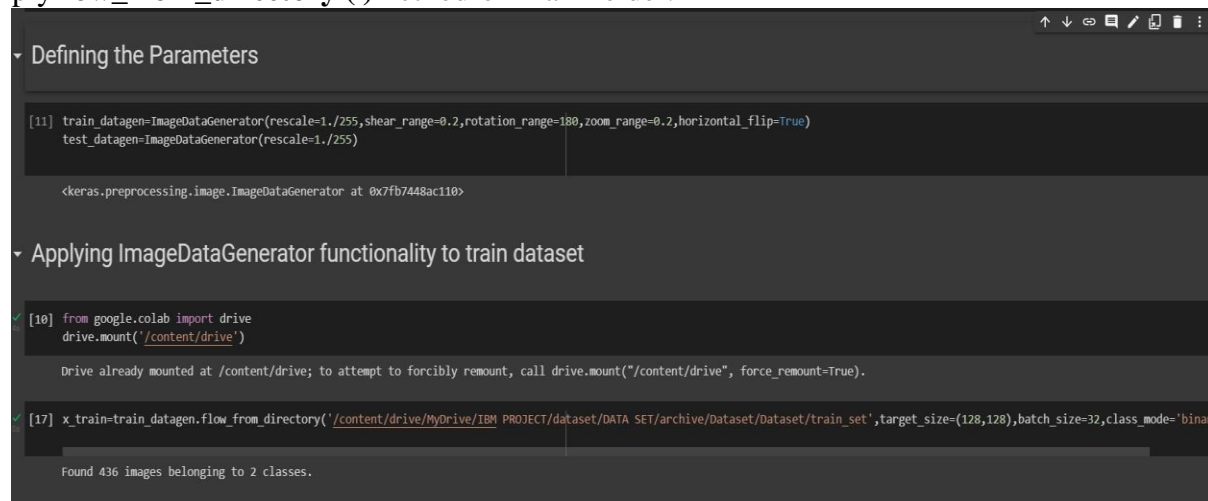
▼ Defining the Parameters

```
▶ 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:

ply `flow_from_directory ()` method for Train folder.



The screenshot shows a Jupyter Notebook interface with two code cells. The first cell, titled 'Defining the Parameters', defines `train_datagen` and `test_datagen` using `ImageDataGenerator` with parameters for rescaling, shearing, rotation, zooming, and horizontal flipping. The second cell, titled 'Applying ImageDataGenerator functionality to train dataset', mounts a Google Drive and uses `flow_from_directory` to load training data from a specific path, specifying target size, batch size, and class mode. The output of the second cell indicates that 436 images were found belonging to 2 classes.

```
[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>

[10] from google.colab import drive
drive.mount('/content/drive')

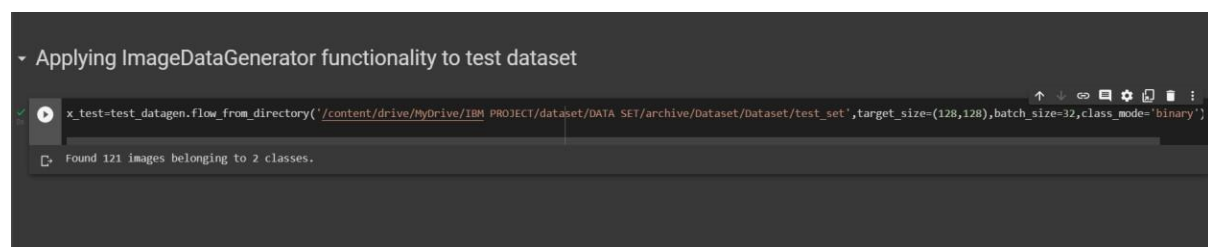
Drive already mounted at /content/drive; to attempt to forcibly remount, call drive.mount("/content/drive", force_remount=True).

[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='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 interface with one code cell titled 'Applying ImageDataGenerator functionality to test dataset'. The cell uses `flow_from_directory` to load testing data from a specific path, specifying target size, batch size, and class mode. The output indicates that 121 images were found belonging to 2 classes.

```
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')
```