EARLY DETECTION OF FOREST FIRE USING DEEP LEARNING

MODEL BUILDING

CONFIGURE THE LEARNING

PROCESS

Team ID	PNT2022TMID33568
Project Name	Project-Early detection of forest fire using deep learning

CONFIGURING THE LEARNING PROCESS

With both the training data defined and model defined, it's time to configure the learning process. This is accomplished with a call to the compile () method of the Sequential model class. Compilation requires 3 arguments: an optimizer, a loss function, and a list of metrics.

Note: In our project, we have 2 classes in the output, so the loss is binary_crossentropy.

If you more than two classes in output put "loss = categorical crossentropy".

IMPORT LIBRARIES:

11/7/22, 12:35 AM Untitled8.ipynb - Colaboratory

Importing Keras libraries

import keras

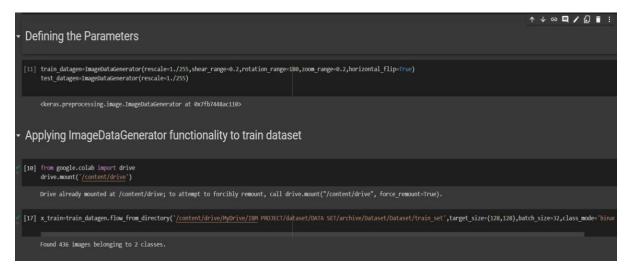
Importing ImageDataGenerator from Keras

from keras.preprocessing.image import ImageDataGenerator

IMPORT ImageDataGenerator FROM KERAS: APPLYING ImageDataGenerator to train dataset:

plyflow_from_directory ()methodfor Train folder.

→ Importing Keras libraries
[1] import keras
→ Importing ImageDataGenerator from Keras



APPLYING ImageDataGenerator to test dataset:

Applying the **flow_from_directory** () methodfortest folder.

+	→ Applying ImageDataGenerator functionality to test dataset								
		T	⊸ ⊛ □ ‡ 🖟 🔒 🗓						
	0	x_test=test_datagen.flow_from_directory('/content/drive/HyDrive/18M PROJECT/dataset/DATA SET/archive/Dataset/Dataset/test_set',target_size=(128,128),batch_sizest_datagen.flow_from_directory('/content/drive/HyDrive/18M PROJECT/dataset/DATA SET/archive/Dataset/Dataset/Dataset/test_set',target_size=(128,128),batch_sizest_datagen.flow_from_directory('/content/drive/HyDrive/18M PROJECT/dataset/DATA SET/archive/Dataset/Dataset/Dataset/test_set',target_size=(128,128),batch_sizest_datagen.flow_from_directory('/content/drive/HyDrive/18M PROJECT/dataset/DATA SET/archive/Dataset	re=32,Class_mode= binary ;						
	C+	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()
```

ADDING CNN LAYERS:

→ Adding CNN Layers

```
model.add(Convolution2D(32,(3,3),input_shape=(128,128,3),activation='relu'))
#add maxpooling layers
model.add(MaxPooling2D(pool_size=(2,2)))
#add faltten layer
model.add(Flatten())
```

ADDING DENSE LAYERS:

Add Dense layers

```
#add hidden layers
model.add(Dense(150,activation='relu'))
#add output layer
model.add(Dense(1,activation='sigmoid'))
```

CONFIGURING THE LEARNING PROCESS:

configuring the learning process

```
model.compile(loss='binary_crossentropy',optimizer="adam",metrics=["accuracy"])
```