EMERGING METHODS FOR EARLY DETECTION OF FOREST FIRES

MODEL BUILDING

CONFIGURING THE LEARNING PROCESS

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Team ID	PNT2022TMID13306
Project Name	Emerging Methods for Early Detection of Forest Fires

Importing The ImageDataGenerator Library

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

Define the parameters/arguments for ImageDataGenerator class

```
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)
```

Applying ImageDataGenerator functionality to trainset

```
x_train=train_datagen.flow_from_directory(r'/content/drive/MyDrive/Dataset/train_set',
target_size=(128,128),batch_size=32, class_mode='binary')
```

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

Applying ImageDataGenerator functionality to testset

```
x_test=test_datagen.flow_from_directory(r'/content/drive/MyDrive/Dataset/test_set'
, target_size=(128,128),batch_size=32, class_mode='binary')
```

```
Found 121 images belonging to 2 classes.
```

Import model building libraries

```
#To define Linear initialisation import Sequential
 from keras.models import Sequential

#To add layers import Dense
from keras.layers import Dense

#To create Convolution 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

```
model=Sequential()
```

Add CNN Layer

```
model.add(Convolution2D(32, (3,3),input_shape=(128,128,3),activation='relu'))

#add maxpooling layer

model.add(MaxPooling2D(pool_size=(2,2)))

#add flatten layer   model.add(Flatten())
```

Add Dense Layer

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

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

Configure the learning process

```
model.compile(loss='binary_crossentropy',optimizer="ad
m",metrics=["ac curacy"])
```