Milestone

Image Preprocessing

Date	15 November 2022
Team ID	PNT2022TMID18498
Project Name	Project – Natural Disasters Intensity Analysis and Classification Using Artificial Intelligence

```
import numpy as np#used for numerical analysis
import tensorflow #open source used for both ML and DL for computation
from tensorflow.keras.models import Sequential #it is a plain stack of layers
from tensorflow.keras import layers #A layer consists of a tensor-in tensor-out computation function
#Dense layer is the regular deeply connected neural network layer
from tensorflow.keras.layers import Dense,Flatten
#Faltten-used fot flattening the input or change the dimension
from tensorflow.keras.layers import Conv2D,MaxPooling2D #Convolutional layer
#MaxPooling2D-for downsampling the image
from keras.preprocessing.image import ImageDataGenerator
```

```
tensorflow.__version__
```

tensorflow.keras.__version__

```
'2.8.0'
```

#setting parameter for Image Data agumentation to the training data
train_datagen = ImageDataGenerator(rescale=1./255,shear_range=0.2,zoom_range=0.2,horizontal_flip=True)
#Image Data agumentation to the testing data
test_datagen=ImageDataGenerator(rescale=1./255)

#performing data agumentation to train data
x_train = train_datagen.flow_from_directory(r'C:\Users\hp\Desktop\IBM\dataset\test_set',target_size=(64, 64),batch_size=5,
color_mode='rgb',class_mode='categorical')
#performing data agumentation to test data
x_test = test_datagen.flow_from_directory(r'C:\Users\hp\Desktop\IBM\dataset\test_set',target_size=(64, 64),batch_size=5,
color_mode='rgb',class_mode='categorical')

```
Found 198 images belonging to 4 classes.
Found 198 images belonging to 4 classes.
```

print(x_train.class_indices)#checking the number of classes

```
{'Cyclone': 0, 'Earthquake': 1, 'Flood': 2, 'Wildfire': 3}
```

print(x_test.class_indices)#checking the number of classes

```
{'Cyclone': 0, 'Earthquake': 1, 'Flood': 2, 'Wildfire': 3}
```

from collections import Counter as c
c(x_train .labels)

```
Counter({0: 64, 1: 29, 2: 61, 3: 44})
```

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