PROJECT DEVELOPMENT PHASE NATURAL DISASTERS INTENSITY ANALYSIS AND CLASSIFICATION USING ARTIFICIAL INTELLIGENCE

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Sprint -2 (DATA COLLECTION & IMAGE PRE-PROCESSING):

As per Sprint Delivery Plan, Sprint-2 includes:

USER STORY NUMBER -2:

The data required for building the model has to be collected from the Website.

USER STORY NUMBER -3:

Pre-process the collected data which is downloaded from the website it prevents the unnecessary variance or Bias problem.

Data

- The data consist of 4 classes Cyclone, Earthquake, Floods and Wildfire.
- The dataset is separated into training and validation set of 742 images in training set and 198 files in test set.
- All the class have almost equal number of training examples.

ImageDataGenerator

- ImageDataGenerator class can be imported from keras.preprocessing.image module.
- The attributes that has been applied to the image are:

rescale=1./255, shear_range=0.2,
zoom_range=0.2,
horizontal_flip=True

- Once the image is pre-processed, convert the image into array and reshape it into the target size of 64,64.
- Create the batch size of 32.

- Apply the transformation on both train and test data. Given the preprocessed data to the model.

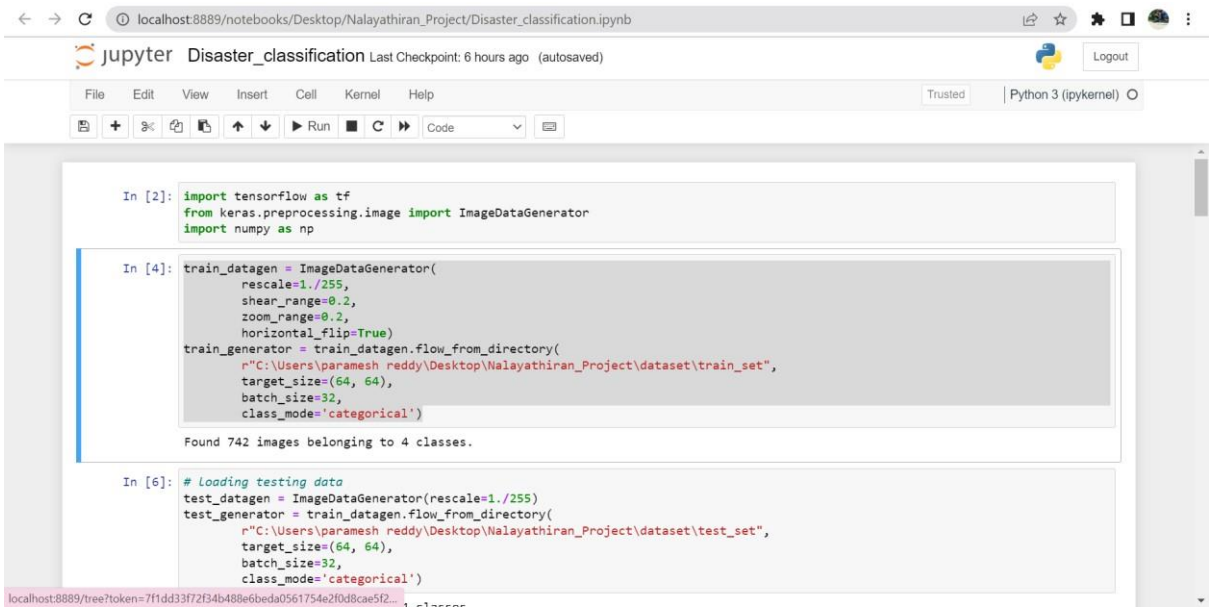
Image Pre-processing code:

```
        train_datagen = ImageDataGenerator(
                                    rescale=1./255,
shear_range=0.2,
zoom_range=0.2,
horizontal_flip=True)
        train_generator = train_datagen.flow_from_directory(

r"C:\Users\parameshreddy\Desktop\Nalayathiran_Project\dataset\train_set",
                                    target_size=(64, 64),
                        batch_size=32,
class_mode='categorical')


test_datagen = ImageDataGenerator(
                                    rescale=1./255,
shear_range=0.2,
zoom_range=0.2,
horizontal_flip=True)
        train_generator = train_datagen.flow_from_directory(

r"C:\Users\parameshreddy\Desktop\Nalayathiran_Project\dataset\test_set",
                                    target_size=(64, 64),
                        batch_size=32,
class_mode='categorical')
```


localhost:8889/notebooks/Desktop/Nalayathiran_Project/Disaster_classification.ipynb
jupyter Disaster_classification Last Checkpoint: 6 hours ago (autosaved)
Logout
File Edit View Insert Cell Kernel Help
Trusted
Python 3 (ipykernel)
Run
Code
In [2]:
import tensorflow as tf
from keras.preprocessing.image import ImageDataGenerator
import numpy as np
In [4]:
train_datagen = ImageDataGenerator(
rescale=1./255,
shear_range=0.2,
zoom_range=0.2,
horizontal_flip=True)
train_generator = train_datagen.flow_from_directory(
r"C:\Users\paramesh reddy\Desktop\Nalayathiran_Project\dataset\train_set",
target_size=(64, 64),
batch_size=32,
class_mode='categorical')
Found 742 images belonging to 4 classes.
In [6]:
# Loading testing data
test_datagen = ImageDataGenerator(rescale=1./255)
test_generator = train_datagen.flow_from_directory(
r"C:\Users\paramesh reddy\Desktop\Nalayathiran_Project\dataset\test_set",
target_size=(64, 64),
batch_size=32,
class_mode='categorical')
localhost:8889/tree?token=7f1dd33f72f34b488e6beda0561754e2f0d8cae5f2...