

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

**PNT2022TMID49983**

## **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)

```
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')
```

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