

PROJECT DEVELOPMENT PHASE
NATURAL DISASTERS INTENSITY ANALYSIS AND CLASSIFICATION USING
ARTIFICIAL INTELLIGENCE
PNT2022MID29928

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 pre-processed 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

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```
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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