PROJECT DEVELOPMENT PHASE
SPRINT-II

Date	18 November 2022
TeamID	PNT2022TMID32512
Project Name	Digital Naturalist – AI Enabled Tool for Biodiversity Researchers
MaximumMarks	8Marks

Image Preprocessing

#Import The ImageDataGenerator Library:

import numpy as np

import tensorflow as tf

import keras

import keras.backend as K

from keras.optimizers import SGD, Adam, Adagrad, RMSprop

from keras.applications import *

from keras.preprocessing import *

from keras.preprocessing.image import ImageDataGenerator

from keras.callbacks import EarlyStopping, ModelCheckpoint

from keras.models import Sequential

from keras.layers import Dense, Conv2D, MaxPool2D, Flatten, Activation, BatchNormalization,Dropout

from keras.utils.np_utils import to_categorical

from sklearn.model_selection import train_test_split

import matplotlib.pyplot as plt

import glob from PIL

 import Image import os

 from os import listdir

#Make A List of Paths To All Folders Where You Have Data :

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

```
test_datagen = ImageDataGenerator(rescale=1./255)
```

#Loading Images Into Machine Understandable Data :

Animal Dataset :
```
 # Passing training data to train variable for animals
xtrain = train_datagen.flow_from_directory('/content/datasetbd/train/animals',
                                 class_mode='categorical',

                                 target_size=(64,64),
```

```python
                                            batch_size=100)
```

Passing testing data to test variable for animals
```python
xtest = test_datagen.flow_from_directory('/content/datasetbd/test/animals',
                              target_size=(64,64),
                              class_mode='categorical',
                               batch_size=100)
```

Birds Dataset:

Passing training data to train variable for birds
```python
xtrain1 = train_datagen.flow_from_directory('/content/datasetbd/train/birds',
                              target_size=(64,64),
class_mode='categorical',                               batch_size=100)
```

```python
xtest1 = test_datagen.flow_from_directory('/content/datasetbd/test/birds',
                              target_size=(64,64),
class_mode='categorical',                               batch_size=100)
```

Flowers Dataset:

Passing training data to train variable for flowers
```python
xtrain2 = train_datagen.flow_from_directory('/content/datasetbd/train/flowers',
                              target_size=(64,64),
                              class_mode='categorical',
                              batch_size=100)
```

Passing testing data to test variable for flowers
```python
xtest 2= test_datagen.flow_from_directory('/content/datasetbd/test/flowers',
                              target_size=(64,64),
                              class_mode='categorical',
batch_size=100)
```

Marine Animal Dataset:

Passing training data to train variable for marine animals
```python
xtrain3 = train_datagen.flow_from_directory('/content/datasetbd/train/marine animals',
                                 class_mode='categorical',
                                 batch_size=100)
```

 # Passing testing data to test variable for marine animals
```python
xtest3=test_datagen.flow_from_directory('/content/datasetbd/test/marineanimals',
,                         class_mode='categorical'
                           batch_size=100)
```

Plants Dataset:

Passing training data to train variable for plants
```python
xtrain4 = train_datagen.flow_from_directory('/content/datasetbd/train/plants',
                              target_size=(64,64),
class_mode='categorical',
batch_size=100)
```

Passing testing data to test variable for plants
```python
xtest4 = test_datagen.flow_from_directory('/content/datasetbd/test/plants',
                                class_mode='categorical',
                                 target_size=(64,64),
                                   batch_size=100)
```