**PROJECT DEVELOPMENT PHASE**

**SPRINT-II**

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| TeamID | PNT2022TMID06561 |
| 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', target\_size=(64,64), class\_mode='categorical',

batch\_size=100)

# Passing testing data to test variable for animals

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

xtrain1 = train\_datagen.flow\_from\_directory('/content/datasetbd/train/birds',

target\_size=(64,64), class\_mode='categorical', batch\_size=100)

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

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

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

xtrain3 = train\_datagen.flow\_from\_directory('/content/datasetbd/train/marine animals', target\_size=(64,64), class\_mode='categorical', batch\_size=100)

# Passing testing data to test variable for marine animals

xtest3= test\_datagen.flow\_from\_directory('/content/datasetbd/test/marine animals', target\_size=(64,64), class\_mode='categorical', batch\_size=100)

**Plants Dataset:**

# Passing training data to train variable for plants

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

xtest4 = test\_datagen.flow\_from\_directory('/content/datasetbd/test/plants', target\_size=(64,64), class\_mode='categorical', batch\_size=100)