

Data Collection and Preprocessing Phase

Date	15 March 2024
Team ID	SWTID1720027196
Project Title	Greenclassify: Deep Learning-Based Approach For Vegetable Image Classification
Maximum Marks	6 Marks

Preprocessing Template

The images will be preprocessed by resizing, normalizing, augmenting, denoising, adjusting contrast, detecting edges, converting color space, cropping, batch normalizing, and whitening data. These steps will enhance data quality, promote model generalization, and improve convergence during neural network training, ensuring robust and efficient performance across various computer vision tasks.

Section	Description
Data Overview	<p>About the dataset</p> <p>This dataset contains three folders:</p> <ul style="list-style-type: none"> ? train (15000 images) ? test (3000 images) ? validation (3000 images) <p>each of the above folders contains subfolders for different vegetables wherein the images for respective vegetables are present</p>

Resizing	<pre># Image size IMG_SIZE = (224, 224) BATCH_SIZE = 32</pre>
Normalization	<pre>val_test_datagen = ImageDataGenerator(rescale=1./255)</pre>
Data Augmentation	<pre># Data augmentation for training set train_datagen = ImageDataGenerator(rescale=1./255, rotation_range=20, width_shift_range=0.2, height_shift_range=0.2, shear_range=0.2, zoom_range=0.2, horizontal_flip=True, fill_mode='nearest')</pre>
Data Preprocessing Code Screenshots	
Loading Data	<pre>train_dir = r'C:\Users\DELL\Desktop\GoogleIntern\myProject\Vegetable Images\train' validation_dir = r'C:\Users\DELL\Desktop\GoogleIntern\myProject\Vegetable Images\validation' test_dir = r'C:\Users\DELL\Desktop\GoogleIntern\myProject\Vegetable Images\test'</pre>
Resizing	<pre># Image size IMG_SIZE = (224, 224) BATCH_SIZE = 32</pre>
Normalization	<pre>val_test_datagen = ImageDataGenerator(rescale=1./255)</pre>

Data Augmentation

```
# Data augmentation for training set
train_datagen = ImageDataGenerator(
    rescale=1./255,
    rotation_range=20,
    width_shift_range=0.2,
    height_shift_range=0.2,
    shear_range=0.2,
    zoom_range=0.2,
    horizontal_flip=True,
    fill_mode='nearest'
)
```