Data Collection and Preprocessing Phase

Date	11 July 2024
Team ID	SWTID1720080895
Project Title	RIPE-SENSE: MANGO QUALITY GRADING WITH IMAGE ANALYSIS AND DEEP LEARNING
Maximum Marks	6 Marks

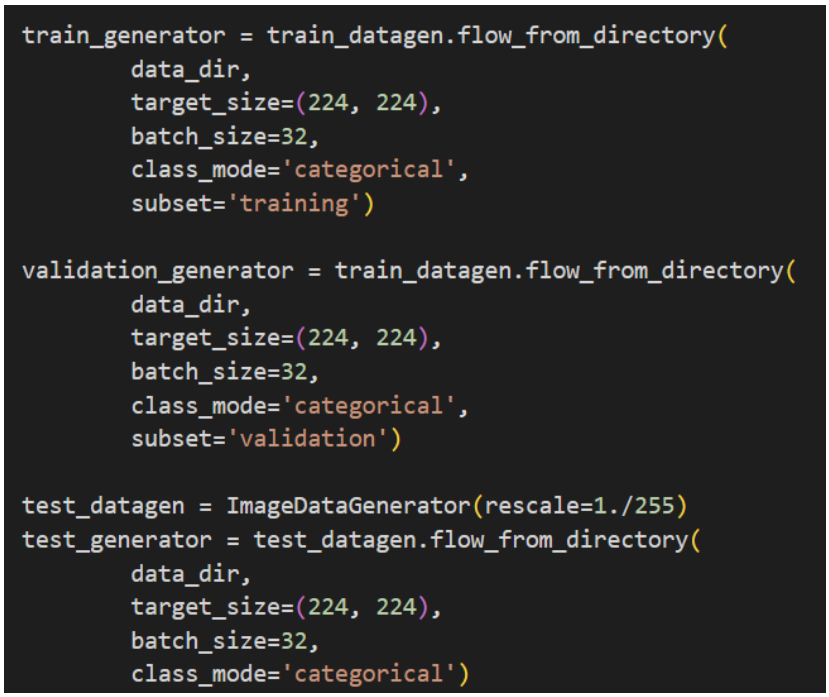
Preprocessing Template

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	Our project utilizes a dataset from Kaggle called 'grading_Data'. This dataset consists of 1100 images showing mangoes at different ripeness stages: under-ripe, perfectly ripe, and over-ripe.
Resizing	ImageDataGenerator resizes images to a uniform size (e.g., 128x128 pixels) during training to ensure consistency and potentially enhance model performance. This approach helps the model effectively learn features despite minor variations in the original image sizes.
Normalization	ImageDataGenerator (rescale=1./255) normalizes the pixel values to a range of 0 to 1 to begin with.
Data Augmentation	The ImageDataGenerator is used to generate variations of mango images during training, employing techniques such as random rotations and horizontal flipping. These methods aid the model in learning robust features and enhancing its ability to generalize to new, unseen mango images.
Denoising	--

Edge Detection	--
Color Space Conversion	--
Image Cropping	--
Batch Normalization	--
Data Preprocessing Code Screenshots	
Loading Data	`data_dir = pathlib.Path('/content/drive/MyDrive/Ripe Sense/Grading_dataset')`
Resizing	`target_size=(224, 224),`

Normalization	`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,`
	`validation_split=0.2)`

Data Augmentation	
Denoising	--
Edge Detection	--
Color Space Conversion	--
Image Cropping	--
Batch Normalization