Data Collection and Preprocessing Phase

Date	27 June 2024
Team ID	SWTID1720428909
Project Title	Vitamin Vision: Unveiling the Spectrum of Nutrient Detection
Maximum Marks	6 Marks

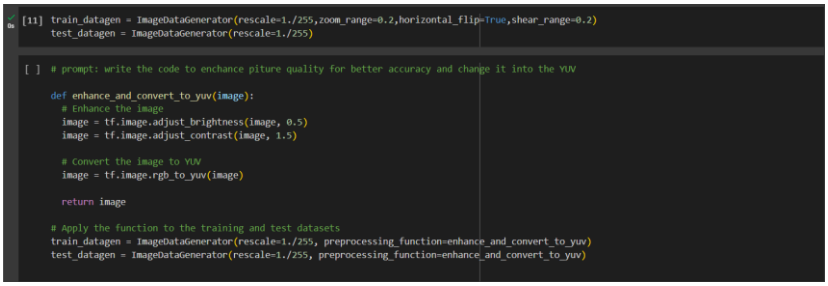
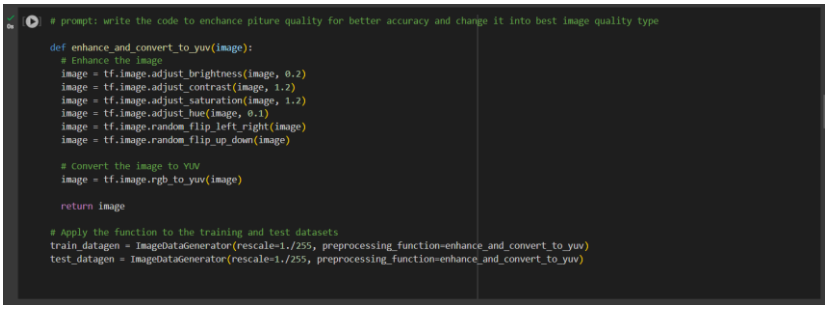
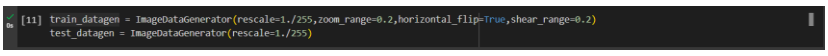
Preprocessing Template

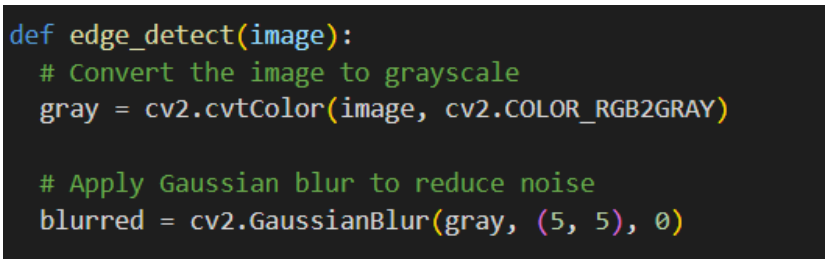
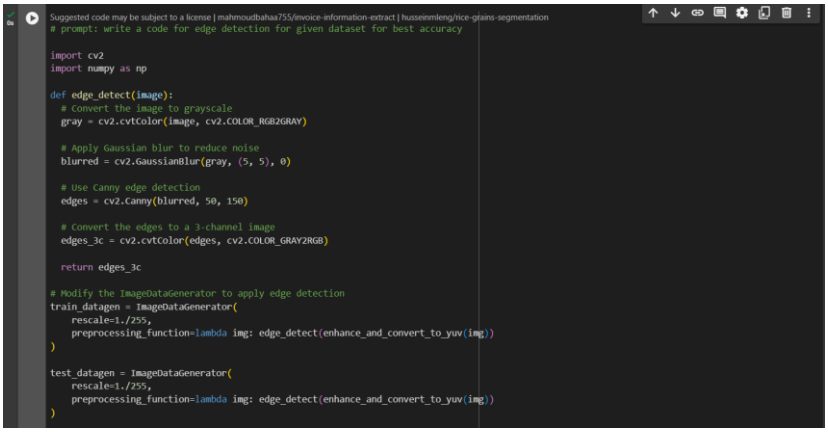
The images will be preprocessed by resizing, normalizing, augmenting, denoising, adjusting contrast, detecting edges, converting color space, cropping, batch normalizing, and whitening data. These steps will enhance data quality, promote model generalization, and improve convergence during neural network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

Section	**Description**
Data Overview	Dataset to be used is going to contain multiple different pictures of different types of edibles: In total 8968 images and 224 test images in .jpg format.
Resizing	rescale=1./255
Normalization	All images were convert to YUV format to achieve best accuracy: enhance_and_convert_to_yuv: image = tf.image.adjust_brightness(image, 0.5) image = tf.image.adjust_contrast(image, 1.5) image = tf.image.rgb_to_yuv(image)
Data Augmentation	zoom_range=0.2, horizontal_flip=True, shear_range=0.2
Denoising	Apply Gaussian blur to reduce noise: blurred = cv2.GaussianBlur(gray, (5, 5), 0)

Edge Detection	Apply edge detection algorithms to highlight prominent edges in the images.
Color Space Conversion	Convert the image to YUV: image = tf.image.rgb_to_yuv(image)
Image Cropping	----
Batch Normalization	----

Data Preprocessing Code Screenshots

Loading Data	
Resizing	
Normalization	
Data Augmentation	

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