Data Collection and Preprocessing Phase

Section	Description
Data Overview	The dataset is from Kaggle. It contains 541 images with 8 classes. The eight classes of breed of dog are beagle, bulldog, dalmatian, german-sheperd, husky, labrador-retriever, poodle, rottweiler
Resizing	The image is resized into a target size of 224 x 224 x 3.
Normalization	Normalized pixel value between 0 to 1.
Data Augmentation	Applied Data augmentation techniques such as flipping, rotation, shifting, zooming, or shearing.
Denoising	-

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Project Title	Dog Breed Identification using Transfer Learning
Maximum Marks	6 Marks

Preprocessing

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.

Edge Detection	-
Color Space Conversion	The images are already in RGB. So, no color space conversion is done.
Image Cropping	-
Batch Normalization	-

Data Preprocessing Code Screenshots

Loading Data	`# download dataset`
	`!kaggle datasets download -d 'mohamedchahed/dog-breeds'`
	`# unzip dataset`
	`!unzip dog-breeds.zip`

Resizing	`# Define the image dimensions and batch size`
	`img_height = 224`
	`img_width = 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)`
	`test_datagen = ImageDataGenerator(rescale=1./255)`

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

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