

Data Collection and Preprocessing Phase

Date	19 March 2024
Team ID	SWTID1720240510
Project Title	Covid vision: Advanced Covid-19 Detection From Lung X-Rays With Deep Learning
Maximum Marks	6 marks

Preprocessing Report

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	COVID images -3616 images Normal images – 10192 images Lung opacity – 6012 images

	<pre> inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-91.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-910.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-911.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-912.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-913.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-914.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-915.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-916.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-917.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-918.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-919.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-92.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-920.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-921.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-922.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-923.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-924.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-925.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-926.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-927.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-928.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-929.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-93.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-930.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-931.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-932.png inflating: dataset/traindata/viral pneumonia/Viral Pneumonia-933.png </pre> <p>Viral Pneumonia – 1345 images</p>
Resizing	<pre> imagesize = [299,299] [299,299,3] </pre>
Normalization	Rescale=1./255
Data Augmentation	Zoom_range=0.2 Shear_range=0.2

Shift_range	width_shift_range=0.2 height_shift_range=0.2
Flipping	horizontal_flip=True
Data Preprocessing Code Screenshots	
Loading Data	<pre> !unzip '/content/drive/MyDrive/dataset.zip' !ls initiating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-41.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-410.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-411.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-412.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-413.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-414.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-415.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-416.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-417.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-418.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-419.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-42.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-420.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-421.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-422.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-423.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-424.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-425.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-426.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-427.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-428.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-429.png inflating: dataset/traindata/viral/pneumonia/Viral/Pneumonia-43.png </pre>
	<pre> initiating: dataset/traindata/normal/Normal-858.png inflating: dataset/traindata/normal/Normal-859.png inflating: dataset/traindata/normal/Normal-86.png inflating: dataset/traindata/normal/Normal-860.png inflating: dataset/traindata/normal/Normal-861.png inflating: dataset/traindata/normal/Normal-862.png inflating: dataset/traindata/normal/Normal-863.png inflating: dataset/traindata/normal/Normal-864.png inflating: dataset/traindata/normal/Normal-865.png inflating: dataset/traindata/normal/Normal-866.png inflating: dataset/traindata/normal/Normal-867.png inflating: dataset/traindata/normal/Normal-868.png inflating: dataset/traindata/normal/Normal-869.png inflating: dataset/traindata/normal/Normal-87.png inflating: dataset/traindata/normal/Normal-870.png inflating: dataset/traindata/normal/Normal-871.png inflating: dataset/traindata/normal/Normal-872.png inflating: dataset/traindata/normal/Normal-873.png inflating: dataset/traindata/normal/Normal-874.png inflating: dataset/traindata/normal/Normal-875.png inflating: dataset/traindata/normal/Normal-876.png inflating: dataset/traindata/normal/Normal-877.png inflating: dataset/traindata/normal/Normal-878.png inflating: dataset/traindata/normal/Normal-879.png inflating: dataset/traindata/normal/Normal-88.png inflating: dataset/traindata/normal/Normal-880.png inflating: dataset/traindata/normal/Normal-881.png inflating: dataset/traindata/normal/Normal-882.png inflating: dataset/traindata/normal/Normal-883.png inflating: dataset/traindata/normal/Normal-884.png inflating: dataset/traindata/normal/Normal-885.png inflating: dataset/traindata/normal/Normal-886.png </pre>

Resizing	<pre> imagesize = [299,299] trainpath = '/content/dataset/traindata' </pre>
Normalization	<pre> train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, width_shift_range=0.2, height_shift_range=0.2) test_datagen = ImageDataGenerator(rescale=1./255) </pre>
Data Augmentation	<pre> import matplotlib.pyplot as plt train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, width_shift_range=0.2, height_shift_range=0.2) test_datagen = ImageDataGenerator(rescale=1./255) </pre>
Shift_range	<pre> import matplotlib.pyplot as plt train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, width_shift_range=0.2, height_shift_range=0.2) test_datagen = ImageDataGenerator(rescale=1./255) </pre>
flipping	<pre> train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, width_shift_range=0.2, height_shift_range=0.2, horizontal_flip=True) test_datagen = ImageDataGenerator(rescale=1./255) </pre>