

## Data Collection and Preprocessing Phase

Date	15 March 2024
Team ID	SWTID1720440447
Project Title	Covid Vision: Advanced COVID-19 Detection from Lung X-rays with 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	The dataset contains data of chest X-ray images for Covid-19 positive cases along with Normal and Viral Pneumonia images
Resizing	Resize images to a target size of (256, 256)
Normalization	rescale=1/255: This parameter is used to normalize pixel values of images. In many image datasets, pixel values range from 0 to 255.
Data Augmentation	Applied augmentation techniques such as zooming range = 0.2 , shearing range = 0.2.
<b>Data Preprocessing Code Screenshots</b>	

Loading Data	<pre> from google.colab import drive import zipfile import os  # Mount Google Drive drive.mount('/content/drive')  # Define the path to the zip file zip_file_path = '/content/drive/My Drive/archive (3).zip' </pre> <p>Mounted at /content/drive</p> <pre> %cd /content/drive/MyDrive </pre> <p>/content/drive/MyDrive</p> <p>Use /tmp to create temporary folder</p> <pre> [ ] !unzip '/content/drive/MyDrive/archive (3).zip' -d '/content/drive/MyDrive/dataset' </pre> <p>Streaming output truncated to the last 5000 lines.</p> <pre> inflating: /content/drive/MyDrive/dataset/COVID-19_Radiography_Dataset/Normal/masks/Normal-7921.png inflating: /content/drive/MyDrive/dataset/COVID-19_Radiography_Dataset/Normal/masks/Normal-7922.png </pre>
Resizing	<pre> IMAGE_SIZE = (256, 256) IMAGE_SHAPE = IMAGE_SIZE + (3,) </pre>
Normalization	<pre> from tensorflow.keras.preprocessing.image import ImageDataGenerator img_height, img_width= IMAGE_SIZE batch_size=16 train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, shear_range=0.2, validation_split=0.3) </pre>
Data Augmentation	<pre> from tensorflow.keras.preprocessing.image import ImageDataGenerator img_height, img_width= IMAGE_SIZE batch_size=16 train_datagen = ImageDataGenerator(rescale=1./255, zoom_range=0.2, shear_range=0.2, validation_split=0.3) </pre>