

## STEP BY STEP CODE EXECUTION PROCEDURE:

### STEP 1:

Launch Google Colab or Python Jupyter Notebook we highly recommend you to use Google Colab.

### STEP 2:

Import the necessary modules and packages as shown in the code and also import warnings module to eliminate warnings.

### STEP 3:

Download Chest Xray Pneumonia Dataset from Kaggle by uploading your api token json file.

Then upload csv file.

### STEP 4:

Preprocessing csv file like replacing empty records with unknown.

### STEP 5:

Extract Test and Train images from Chest Xray Pneumonia dataset.

### STEP 6:

Create a Function called `read_img` which takes parameter as a image path and reads the image and then convert that image into numpy array and return the image numpy array.

### STEP 7:

Perform data augmentation and generates augmented images and store it in an array.

### STEP 8:

Convert each image into numpy array and concatenate augmented image array with train array.

### STEP 9:

Convert all arrays into Tensor arrays.

### STEP 10:

Build the sequential model and load the ResNET 50 as first layer and add other layers to model.

### STEP 11:

## TRAINING AND TESTING MODELS

Compile the model with adam optimizer and `binary_crossentropy` as loss before you train and test model.

Train the model with train tensor array and validation data as test tensor array with 12 epoch with the batch size of 32 use accuracy matrix while training the data

**STEP 12:**

Map the prediction with `y_train` and `y_test` and plot the confusion matrix and classification report.

**STEP 13:**

Upload an image to model to predict whether an image is Pneumonia or Normal.