**CLASSIFICATION OF PNEUMONIA AND NORMAL**

1. First import all necessary library like numpy, opencv, (for image manipulation techniques) matplotlib (to visualize images) keras to perform data augmentation and model building.
2. Then import our dataset to our notebook. After import our images visualize two random images using ,matplotlib.
3. Then perform data augmentation techniques like image scalling , random zoom , random brightness to our image. The main reason behind using augmentation techniques that we want our model to train on different variety of images so that it won’t get ovefitted only on our training set. It will be able to correctly classify images in test set also.
4. Then we created our convolutional neural network.In that CNN we use convolutional layer in order to detect features from our input image and we use relu activation function in order to bring non linerarity in our image.
5. Then we use Maxpooling layer which helps us to minimize the dimension of image by capturing the main feature without loosing any information.
6. Then we use flatten layers in order to flatten our image to 1 dimensional vector so that it would be better for the input of our feed forward network.
7. After Flattening the image , we use simple feed forward neural network with relu activation function to classify and a sigmoid activation in output layer to classify an image into different class.
8. The we compile our model with adam optimizer and binary cross entropy loss function with accuracy metrics.
9. Additionally we use early stopping and model check point inorder to save our best model and to avoid running our model again and again.
10. We also use Dropout layer and BatchNormalization layer inorder to avoid overfitting on training data.

Thank You