

Image Processing Using Deep Learning



Today's Agenda

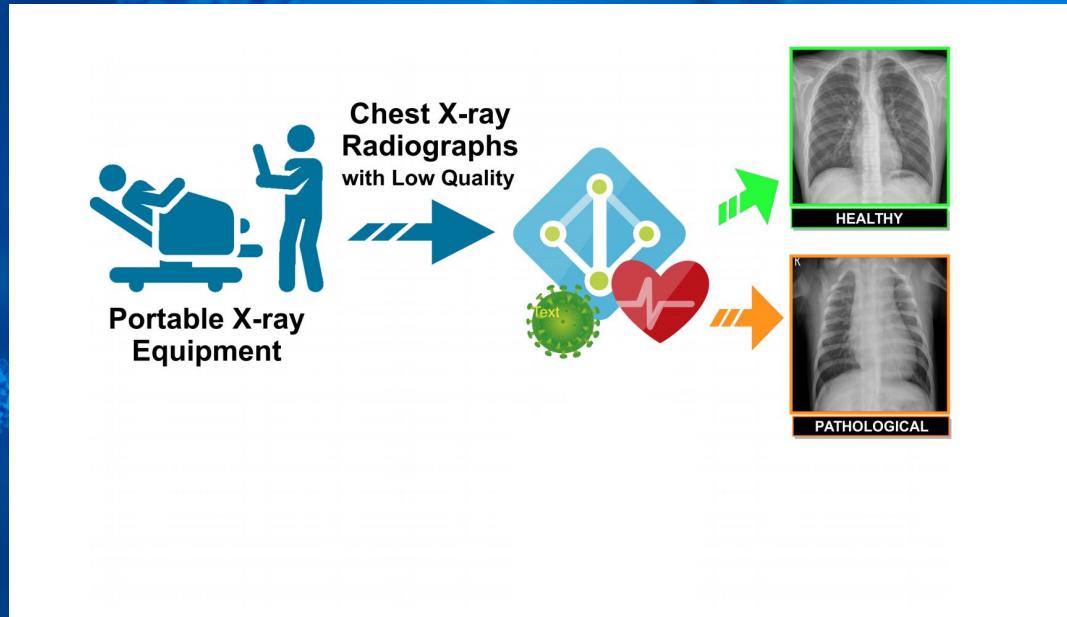
- ▶ Project overview
- ▶ Business Problem
- ▶ Data
- ▶ Methodology
- ▶ Analysis
- ▶ Model
- ▶ Result
- ▶ Conclusion
- ▶ Next step

1. Project Overview



- ▶ Pneumonia is an infection that inflames air sacs in one or both the lungs, which may fill with fluid.
- ▶ It requires early diagnosis else it might lead to complications.
- ▶ This project focus on diagnosis of pneumonia using chest x-ray images.

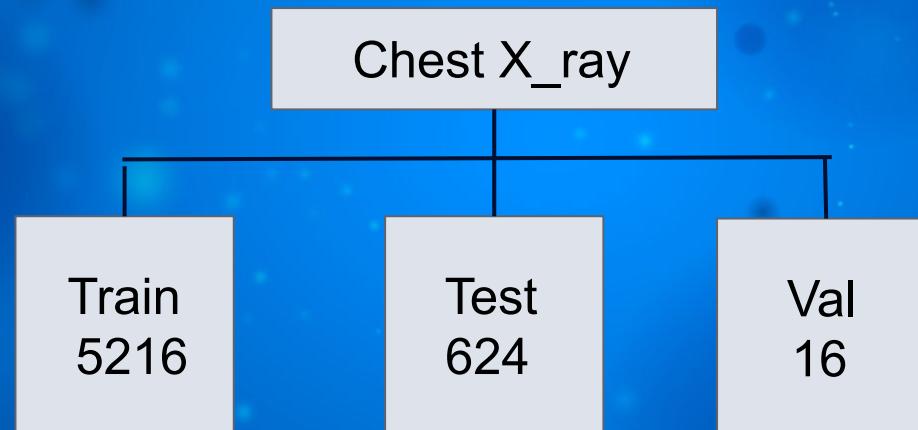
2. Business Problem



- ▶ The current outbreak of covid have led to many deaths of patients mainly due to pneumonia like symptoms in lungs.
- ▶ Even the trained radiologist sometimes finds it difficult to detect pneumonia in lungs accurately. Hence one of the leading hospital wants to build an efficient model to detect whether the X-ray of a person has pneumonia or not.

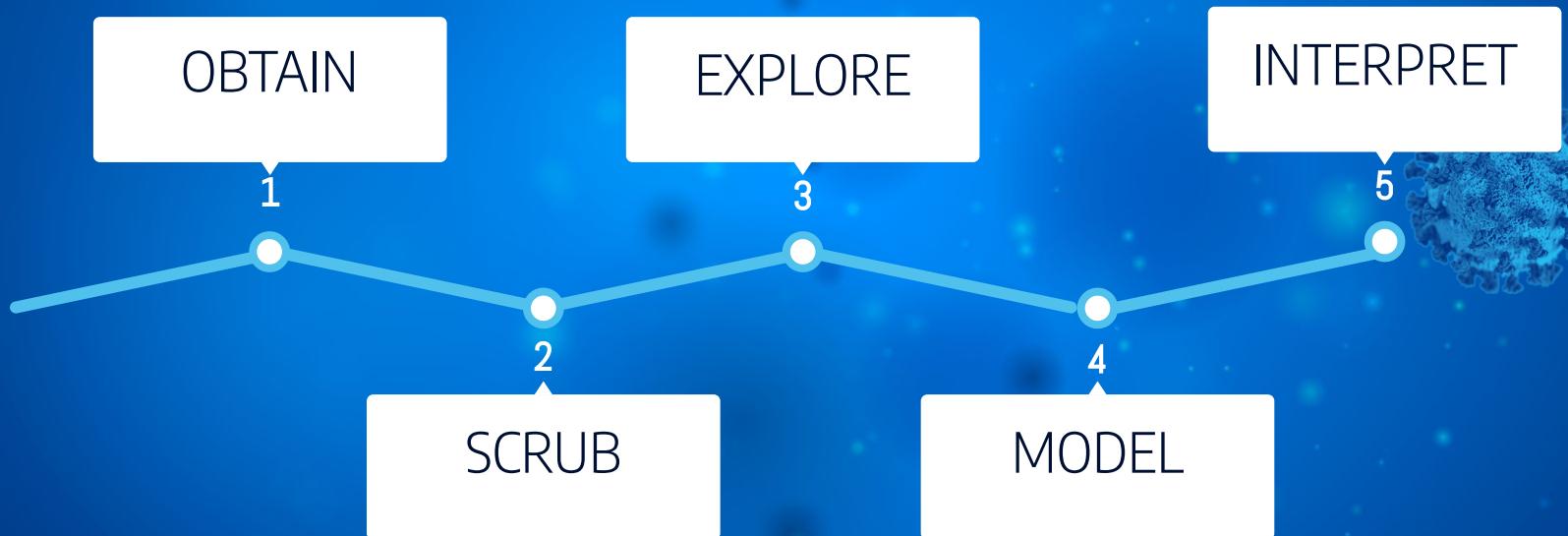
3. Data

Data is collected from Kaggle and consist of chest x_ray images



4. Methodology

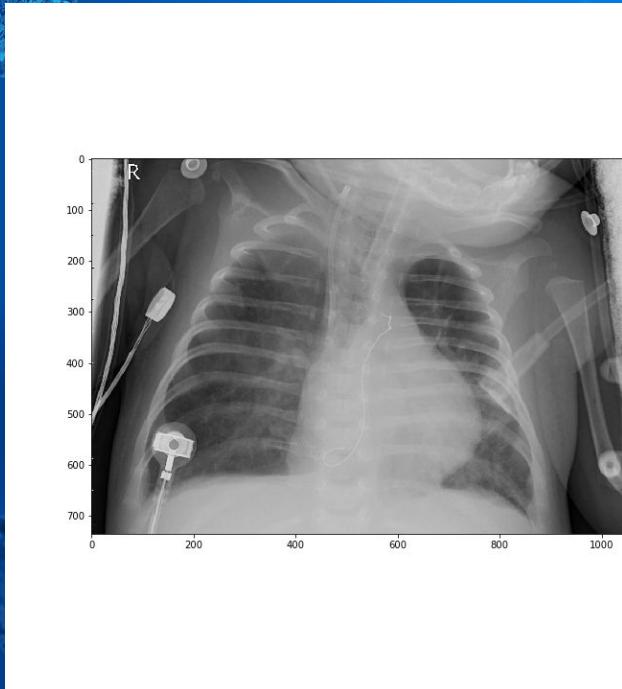
OSMEN Approach



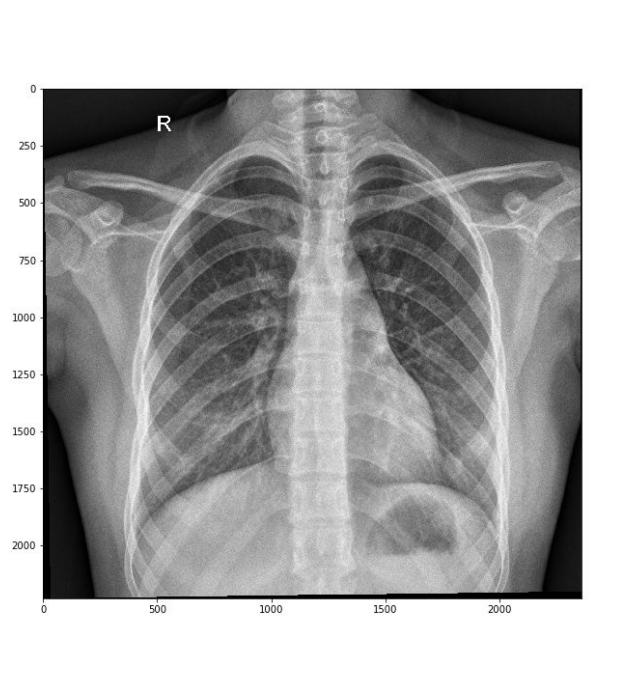
5. Analysis

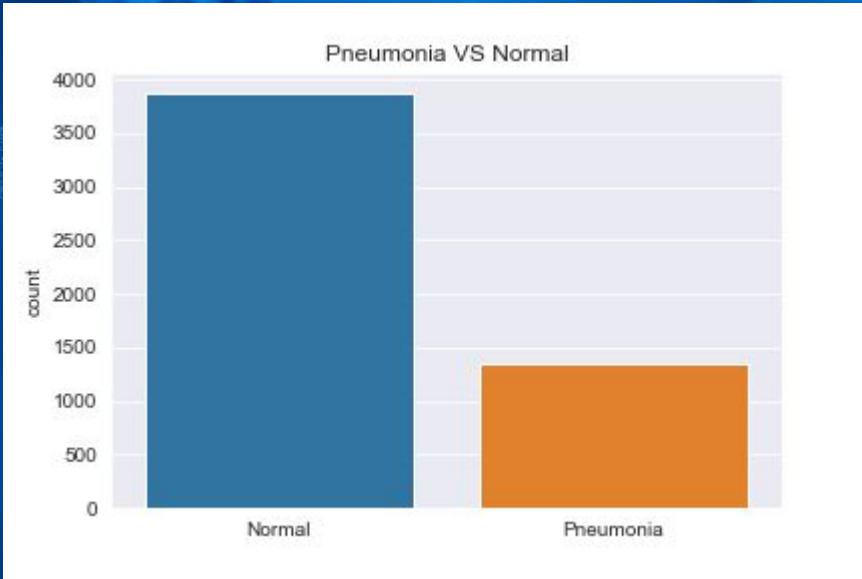
- ▶ Comparison of chest x_ray images which has pneumonia and no pneumonia.
- ▶ All the images were downsized to 128X128 pixels and RGB color channels.

Pneumonia

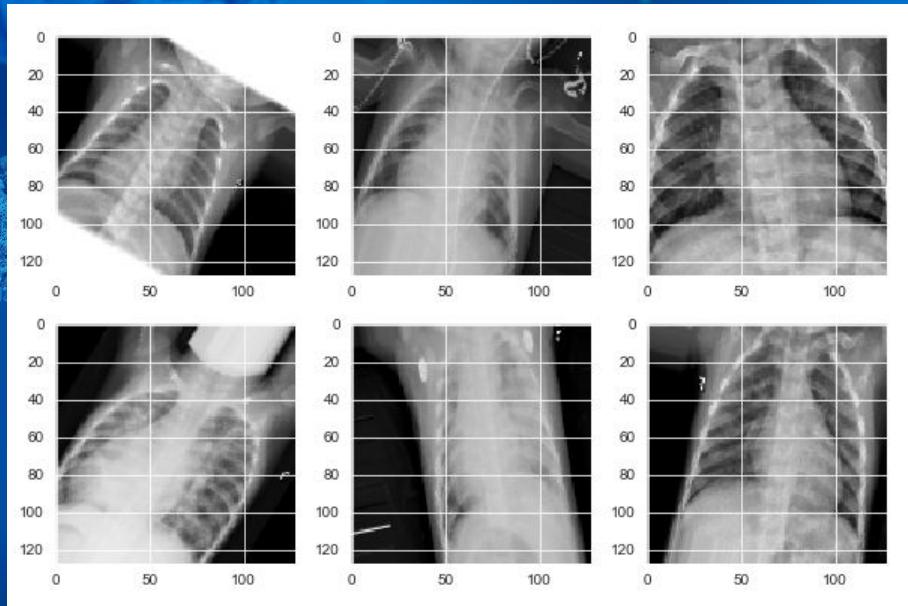


Normal





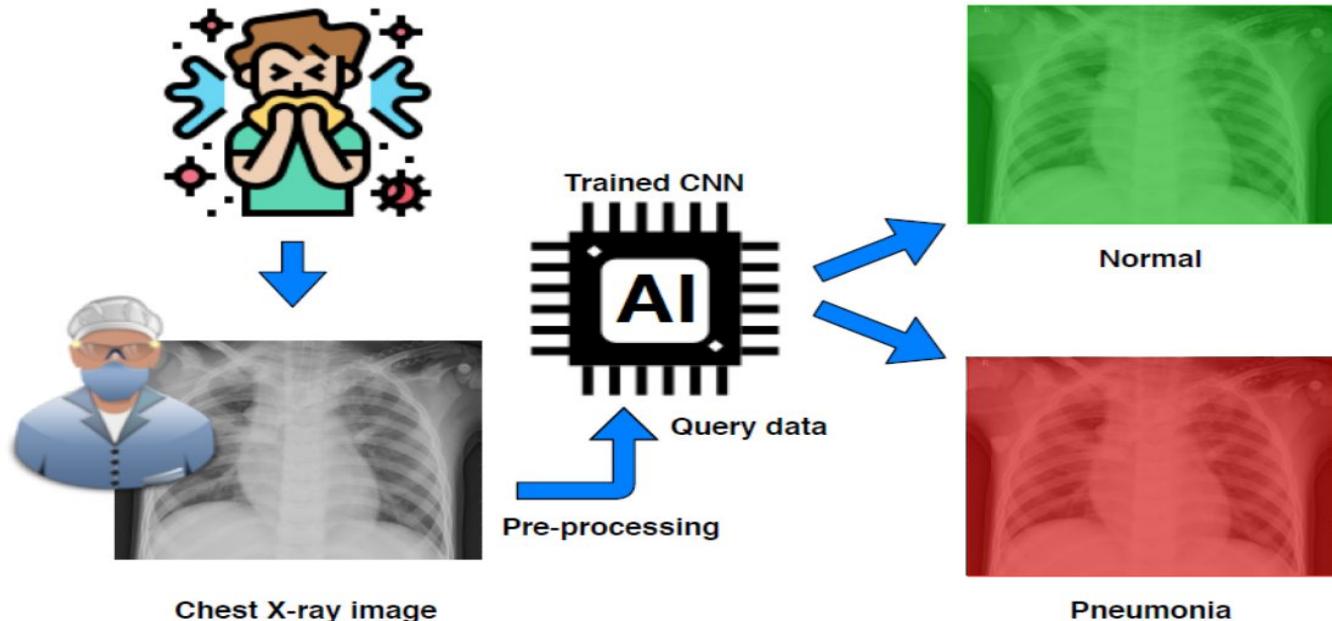
- ▶ There is a imbalance in our image dataset
- ▶ 74% of normal cases and only 25% of Pneumonia cases.



- ▶ Data imbalance is dealt by Data Augmentation.
- ▶ Rotation, zoom, width shift, height shift, vertical flip and horizontal flip.

6. Model

The backend of our model prediction

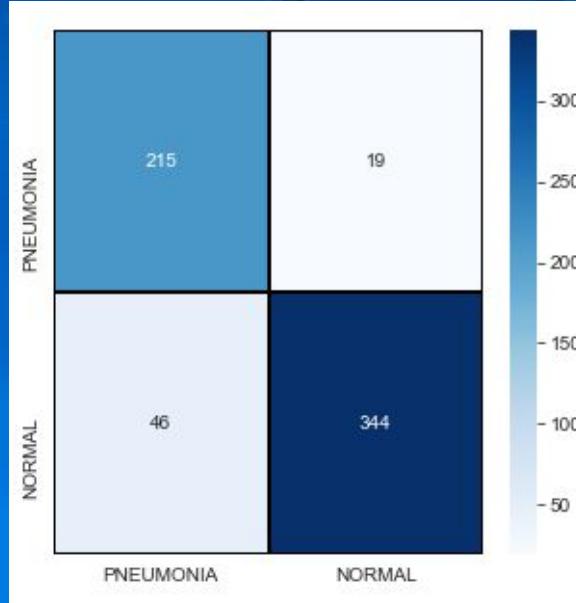
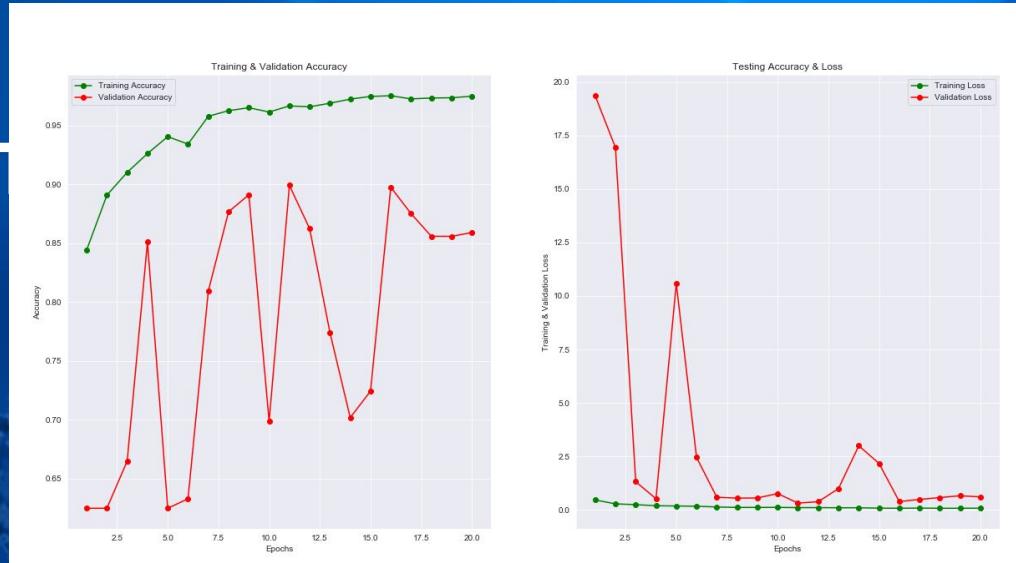


7. Results

Accuracy and loss rate graph of the model prediction

Train Accuracy : 88 %

Test Accuracy : 89 %



True Positive : 215

True Negative : 344

False Positive : 46

False Negative : 19

8. Conclusion

- ▶ Model performed well in terms of prediction.
The accuracy rate and confusion matrix result was higher compared to other models performed.
- ▶ Can be used for image classification purpose

9. Next Step

- ▶ The overfitting of accuracy graph needs to be improved.
- ▶ More data has to be collected to train the model.
- ▶ More layers and complex structure.
- ▶ Comparison of original report from hospital and the model prediction.

Thank You!

Any questions?

You can find me at

janakipurushothamman@gmail.com