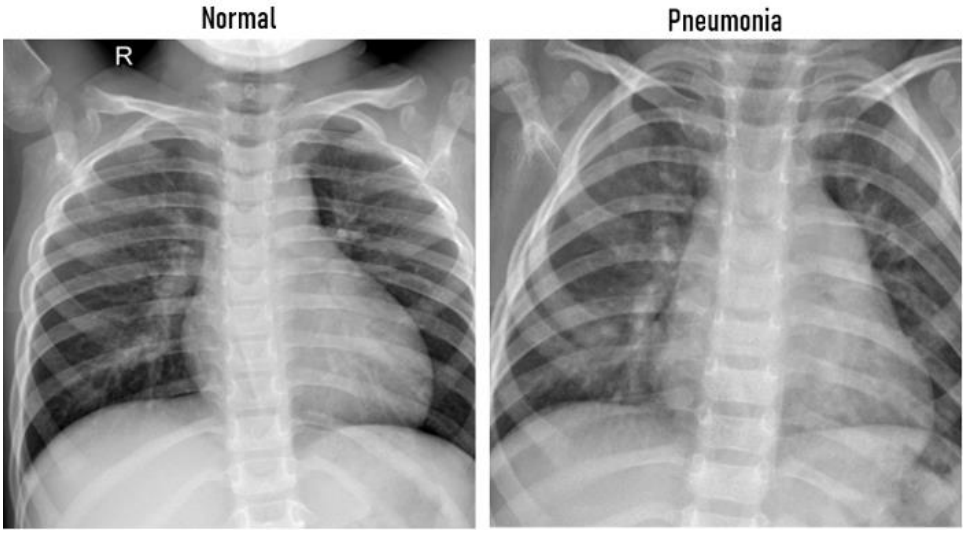
PNEUMONIA DETECTION USING X-RAYS USING WATSON STUDIO

RESULT:

Dataset

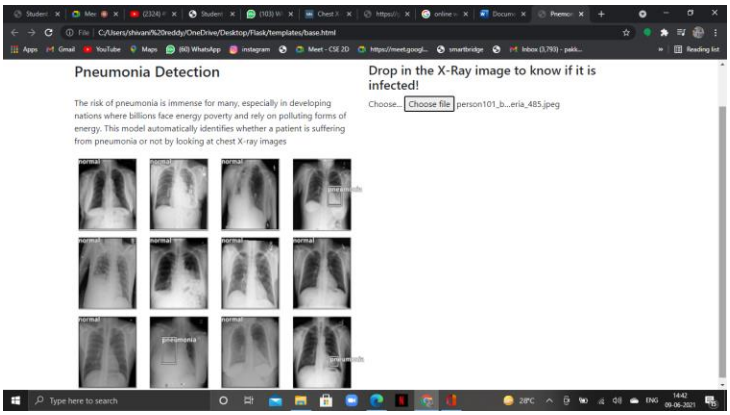
The dataset composes of two classes which are normal lung and pneumonia lung as can be seen in the figure below.



The output of **model.summary()**

```
Model: "sequential_1"
_________________________________________________________________
Layer (type)                 Output Shape              Param #
=================================================================
conv2d_1 (Conv2D)            (None, 298, 298, 16)      448
_________________________________________________________________
max_pooling2d_1 (MaxPooling2 (None, 149, 149, 16)      0
_________________________________________________________________
conv2d_2 (Conv2D)            (None, 147, 147, 32)      4640
_________________________________________________________________
max_pooling2d_2 (MaxPooling2 (None, 73, 73, 32)        0
_________________________________________________________________
conv2d_3 (Conv2D)            (None, 71, 71, 64)        18496
_________________________________________________________________
max_pooling2d_3 (MaxPooling2 (None, 35, 35, 64)        0
_________________________________________________________________
flatten_1 (Flatten)          (None, 78400)             0
_________________________________________________________________
dense_1 (Dense)              (None, 512)               40141312
_________________________________________________________________
dense_2 (Dense)              (None, 1)                 513
=================================================================
Total params: 40,165,409
Trainable params: 40,165,409
Non-trainable params: 0
_________________________________________________________________
```

OUTPUT:



CONCLUSION:

Throughout the process of developing the CNN model for Pneumonia prediction, we have built a model from scratch which consists of 5 layers and follows with a fully connected neural network. Then the trained model is evaluated using separate unseen data to avoid bias prediction. As the result, the accuracy of the test dataset reached 81.25% which indicates a decent model. This mini-project allows a beginner to obtain an overview of how to build a model to solve a real-world problem.

It is no doubt that the predictive model can be improved even better by performing data augmentation or implementing a transfer learning concept which facilitates the model a room for improvement. Therefore, this will be added as further enhancement in the upcoming stories.