Pneumonia Detection

Business Problem

Data Understanding

Modeling

Results and Evaluation

Recommendations and Next Steps

Business Problem

Mt. Sinai hospital wants to utilize technology to help diagnose patients who have Pneumonia correctly. It will greatly increase the efficiency of the hospital and could potentially use this technology as a screening process to better help patients.

Data Understanding

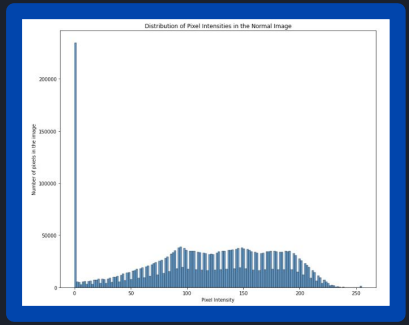
The dataset from Kaggle contained X-ray images for patients with and without pneumonia.

Train set:
Pneumonia =3575
Normal=1041

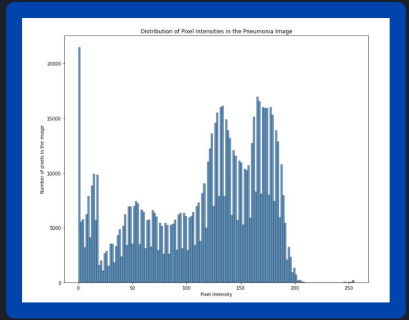
Validation set:
Pneumonia =308
Normal=308

Test set:
Pneumonia =390
Normal=234

Normal X-Ray



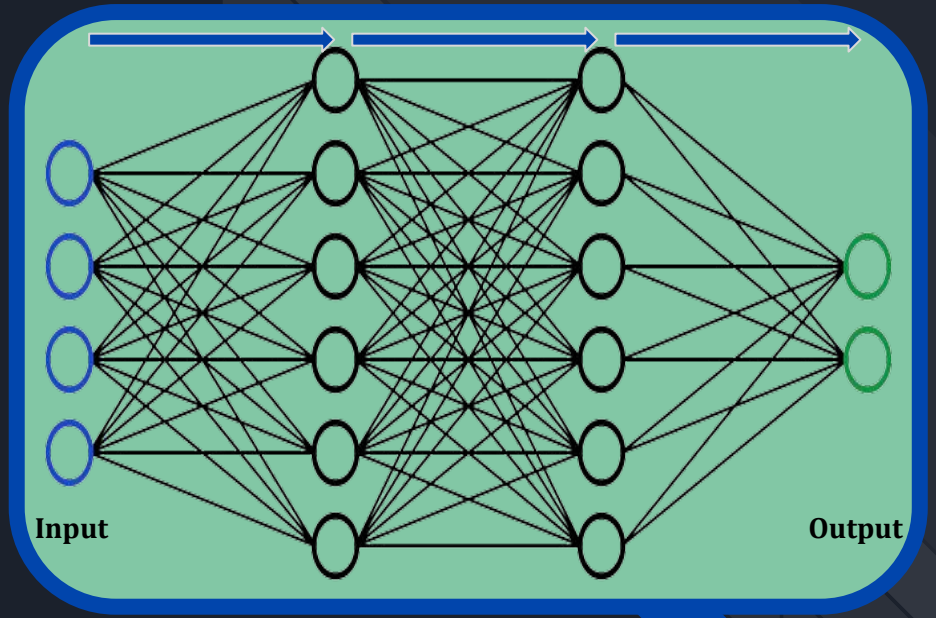
Pneumonia X-Ray



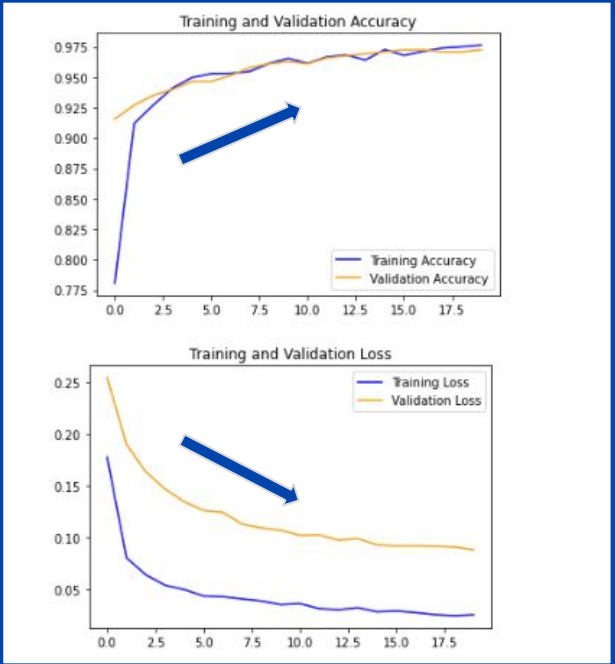
Modeling

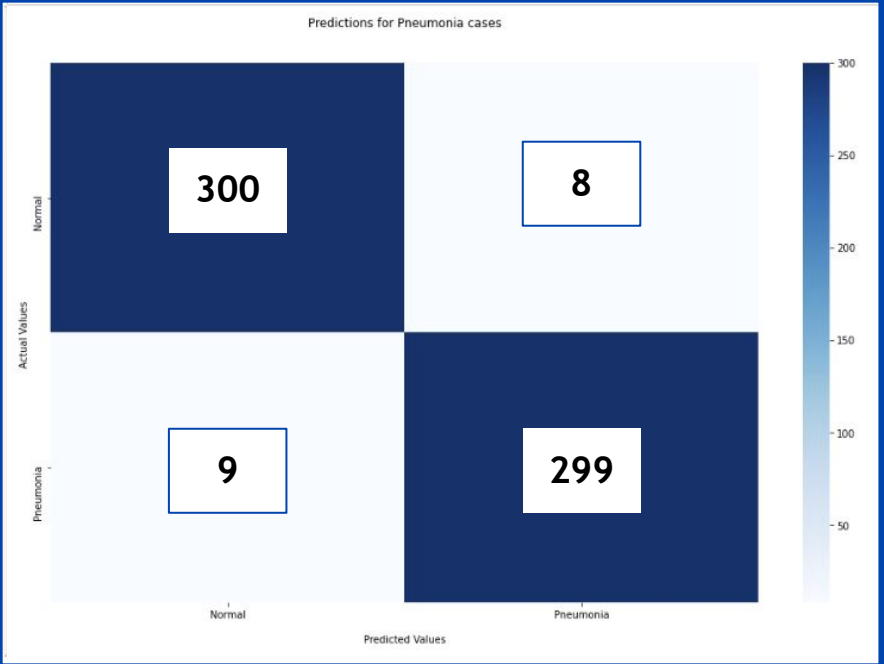
Neural Networks

- Process complex data such as image
- Fast
- Efficient



Results and Evaluation





- Training and Validation Accuracy trended up together while training and validation loss trended down.
- Out of 308 cases of Pneumonia X-Rays, 299 were correctly predicted on Validation set.
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Results and Evaluation

Out of 390 cases of Pneumonia X-Rays, 383 were correctly predicted.

Recommendations

- Use the recommended model to screen patients to detect Pneumonia to provide care to them quickly and efficiently.
- Include more X-rays of the stages of Pneumonia in which patients can have.
- Permit use of demographic data to see if demographic plays a role in likelihood of Pneumonia

Next Steps

- Use other transfer learning models
- Tune current model for better predictions on patients without Pneumonia
- Include demographic data into model.

Thank you!

Email: jonathan.roman1213@gmail.com
Github: @jonathanr1212
Linkedin: linkedin.com/in/jonathan-roman1/