PREDICTING PNEUMONIA IN LUNGS

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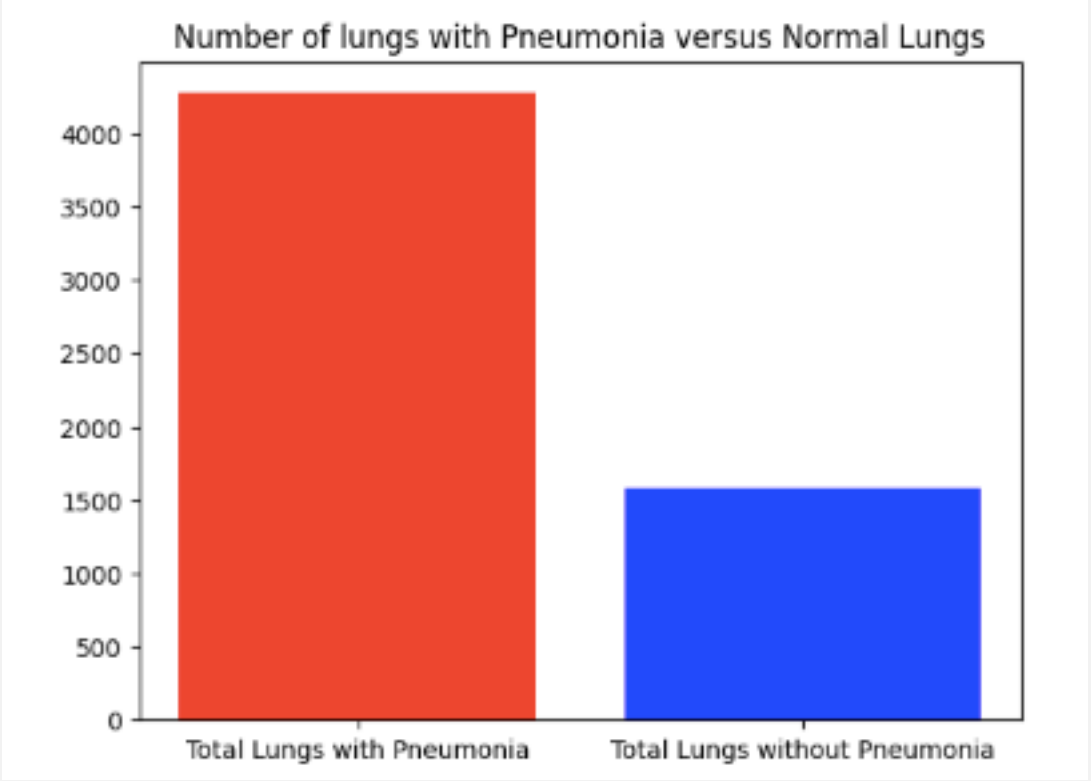
BUSINESS OBJECTIVES

- Pneumonia is caused from an infection within the lungs either from bacteria, virus, or other pathogens.
- This condition could lead too hospitalizations and potentially death.
- In the US alone, 1 million people are hospitalized and 50,000 die every year.
- The goal of this project is too create a model that can identify pneumonia lung X-rays.

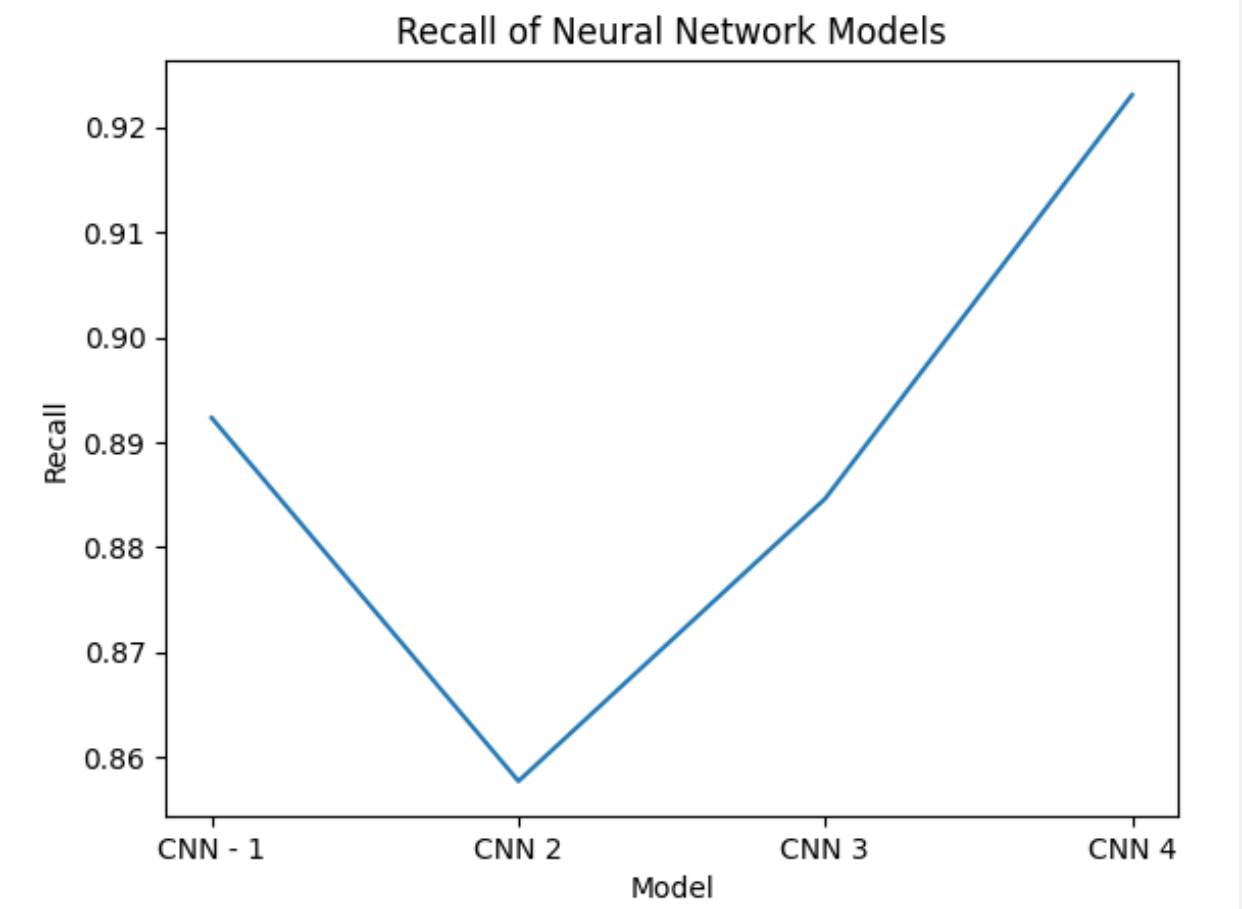
DATA

- Data sets off lungs with Pneumonia and healthy lungs were provided by Guangzhou Women and Children's Medical Center, Guangzhou.
- The data contains 3 data sets, train, test, and validation. In each file, there are two folders: Pneumonia and normal.
- The records in each set were re-combined before they were split into training/validation set for modeling.



MODEL RESULTS

- The final model was selected on the following:
  - How accurate it's predictions were
  - How well it identified lungs that have pneumonia.
- The final model, while lower in accuracy identified the most number of lungs with pneumonia.
- This model would have saved the most amount off lives.



RECOMMENDATIONS

- These results on the small subset off data are promising since a validation accuracy off 94% was achieved.
- Further research is needed before this model is implemented in hospitals.
- Training on larger and more diverse data sets are needed. This dataset only contained lung x-rays off children under 5.

FUTURE PROJECTS

- Aggregate significantly more lung data across groups off different ages.
- Enhance the model by allowing it too identify bacterial and viral pneumonia.
- Implement model in a small hospital then scale it up.

CONTACT INFORMATION

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- Github: https://github.com/dragunat2016/Pneumonia_Image_Detection