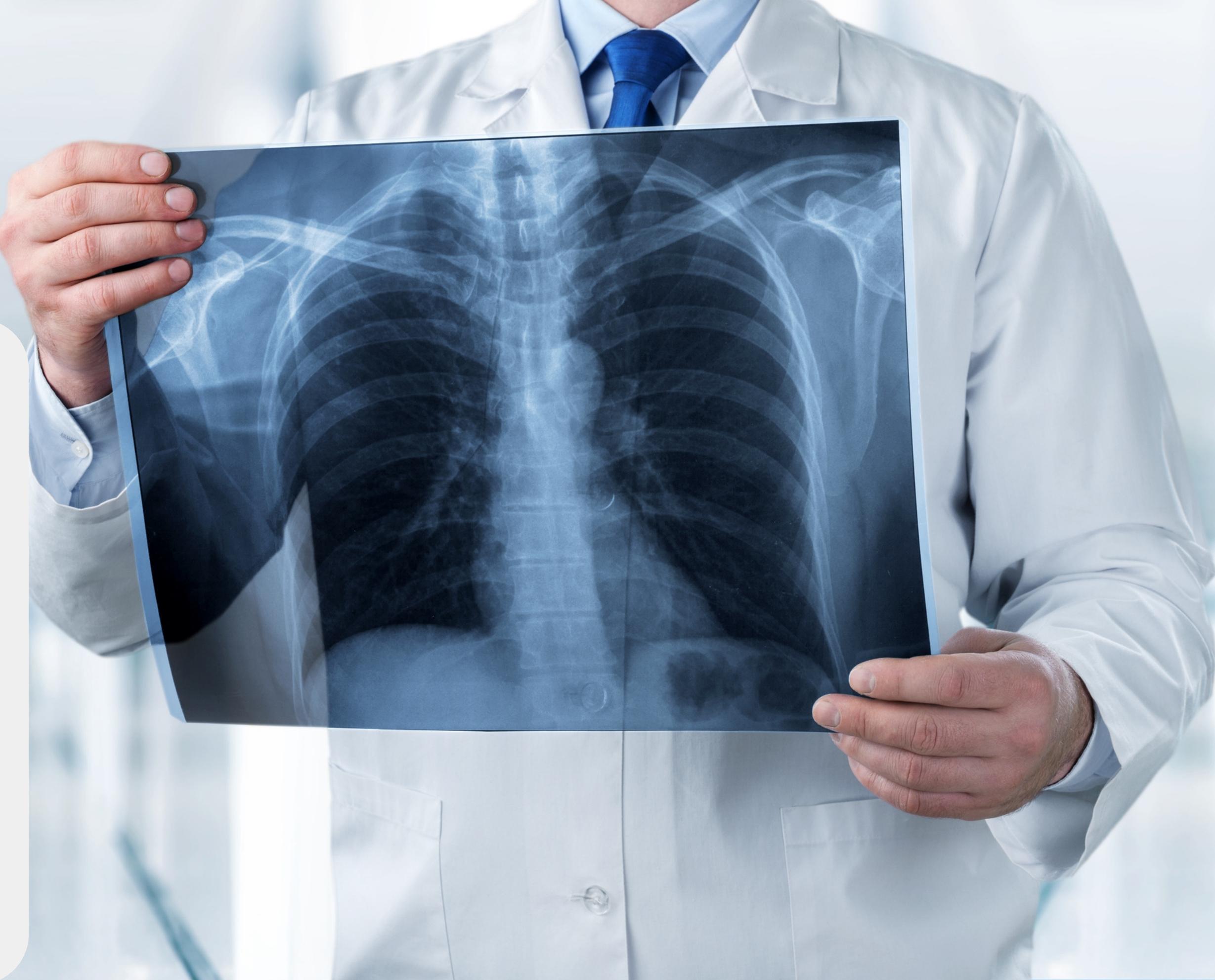


# CHEST X-RAY IMAGE CLASSIFICATION

Emmi Galfo  
August 2023

# BUSINESS PROBLEM

An AI-powered system is needed in order to assist radiologists with reading X-rays and flagging potential cases of pneumonia. The goal is to provide radiologists with technology that can aid them in interpreting X-rays accurately and efficiently, leading to quicker and more accurate diagnoses.



# OUTLINE

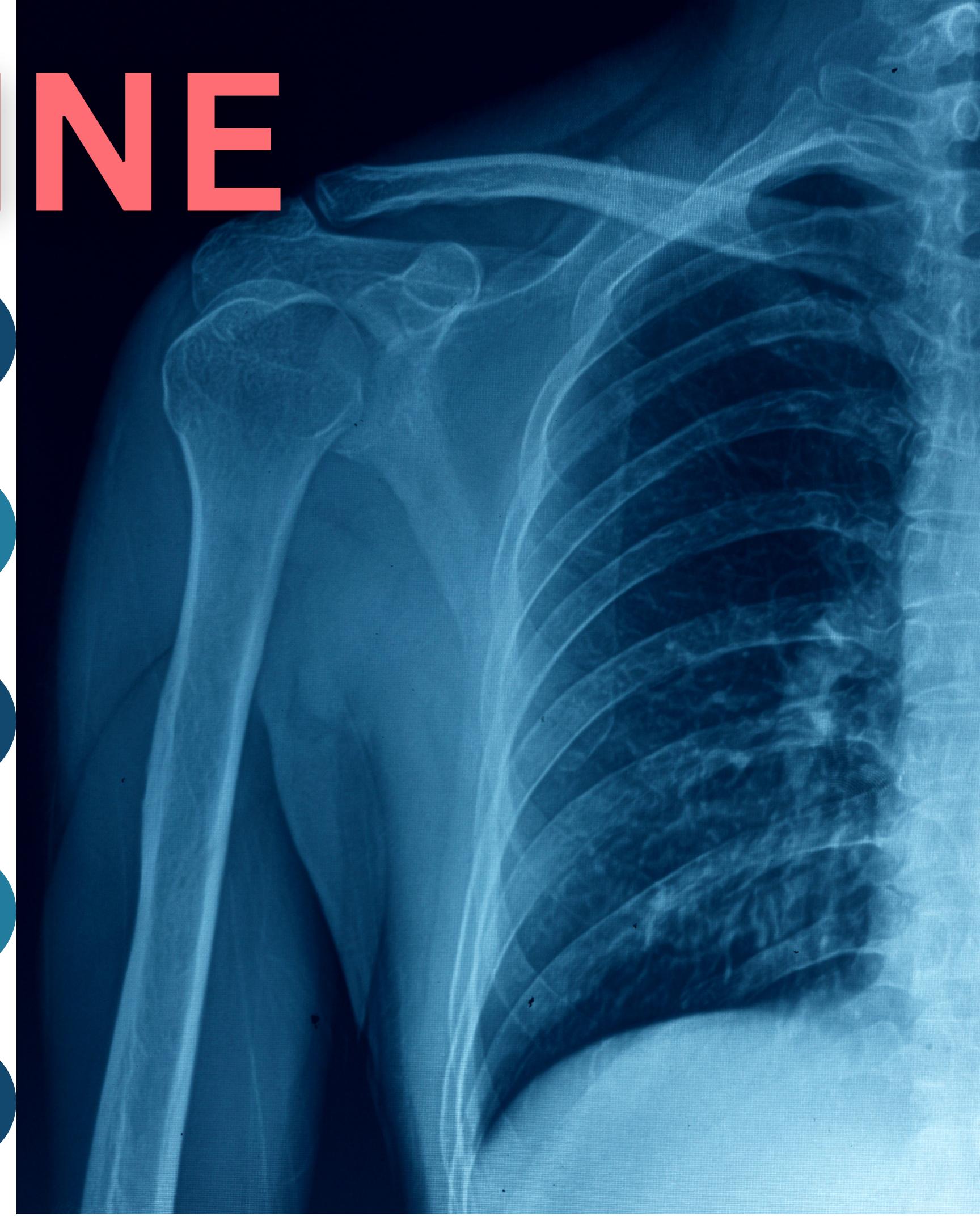
01 - OVERVIEW

02 - DATA

03 - MODELING

04 - RESULTS

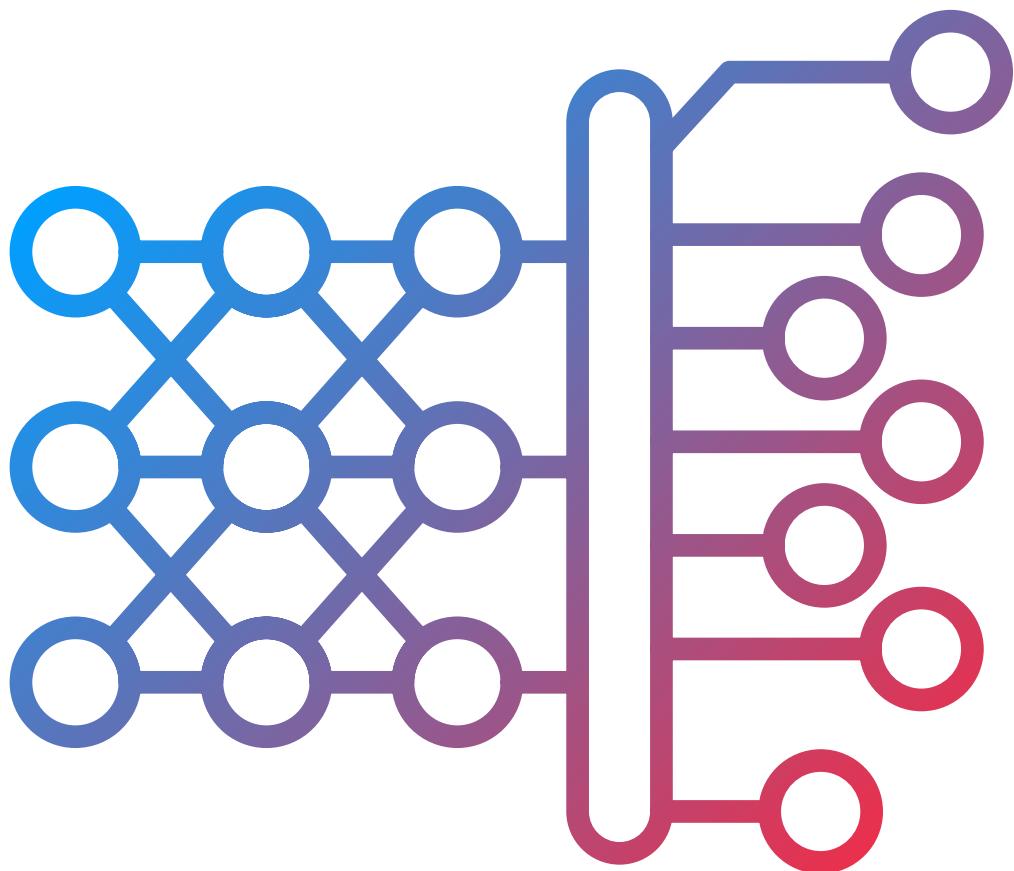
05 - CONCLUSIONS



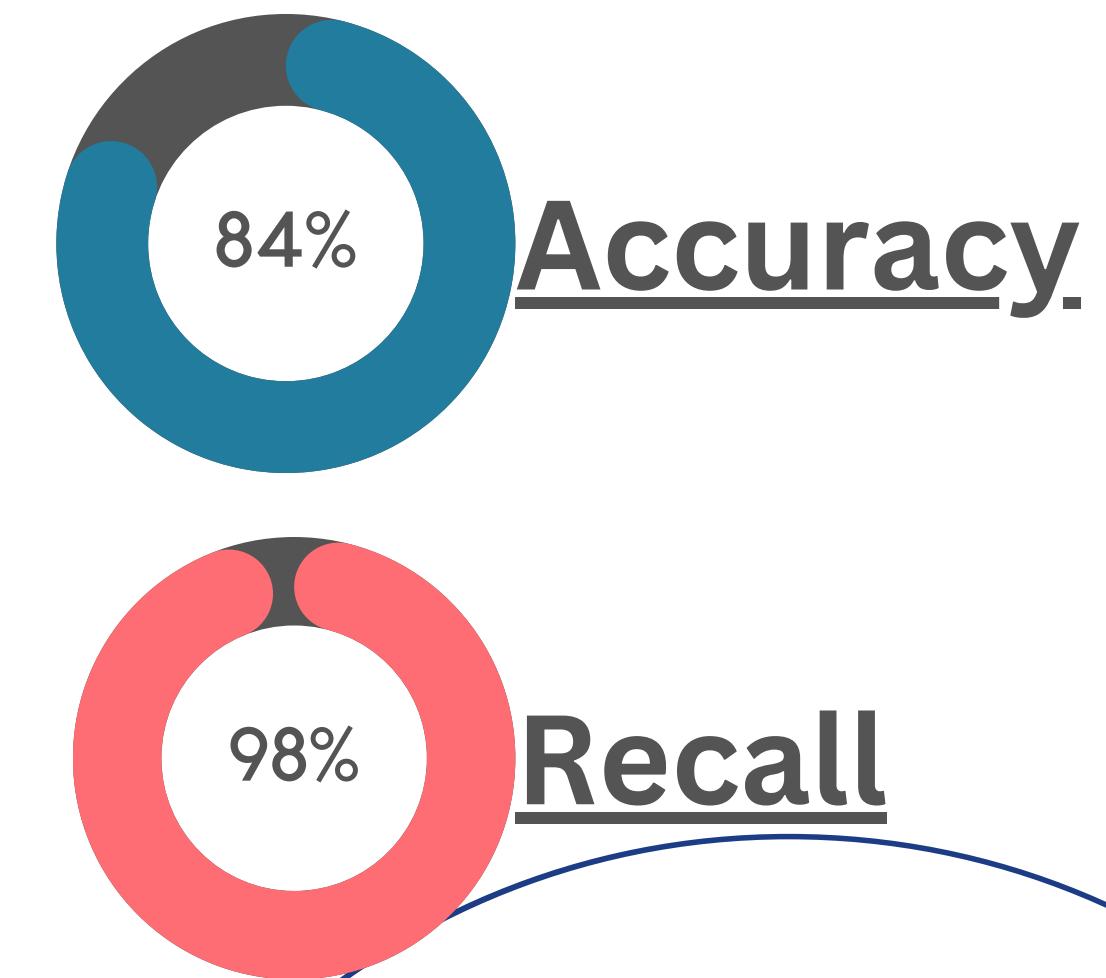
# OVERVIEW



DATA- KAGGLE.COM

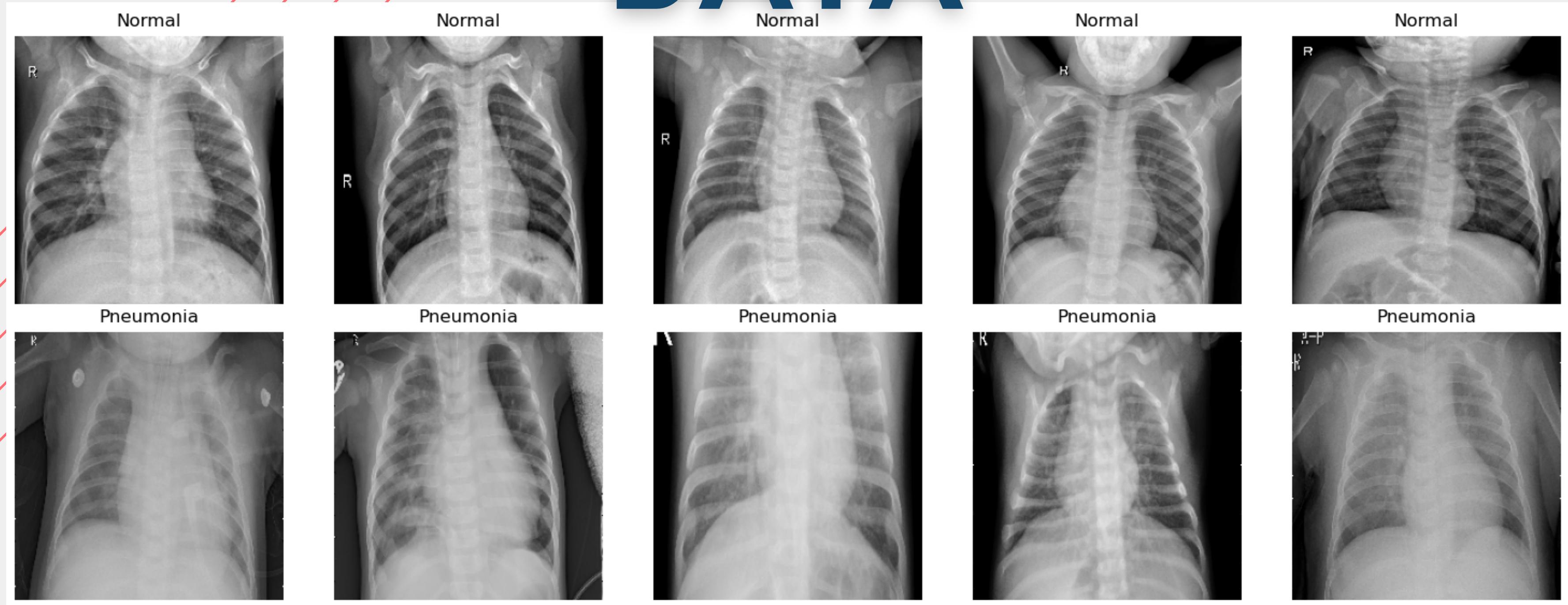


CNN MODELING- XCEPTION



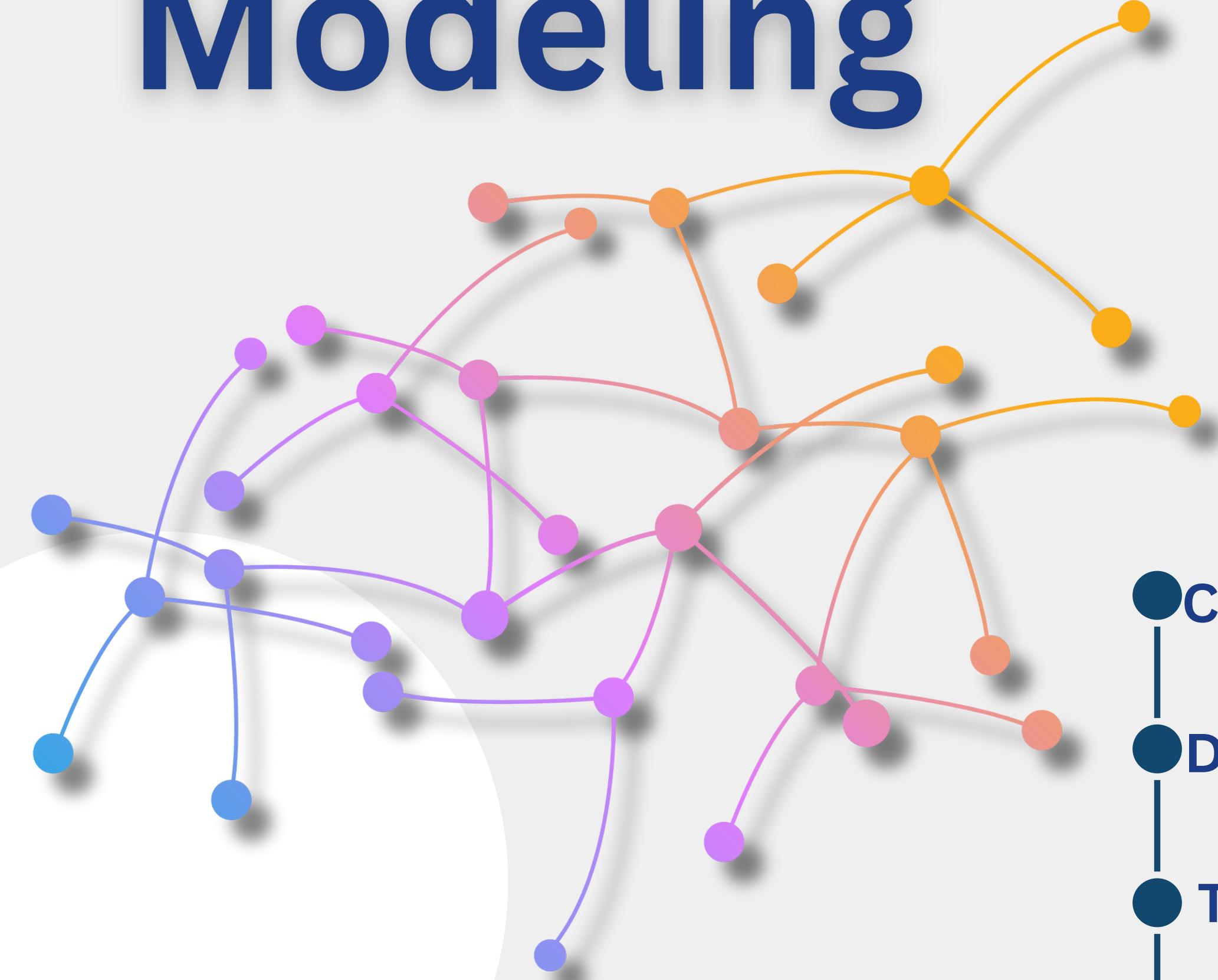
RESULTS

# DATA



- Kaggle.com
- 5,863 Images
- Two Classes - *Pneumonia & Normal*

# Modeling



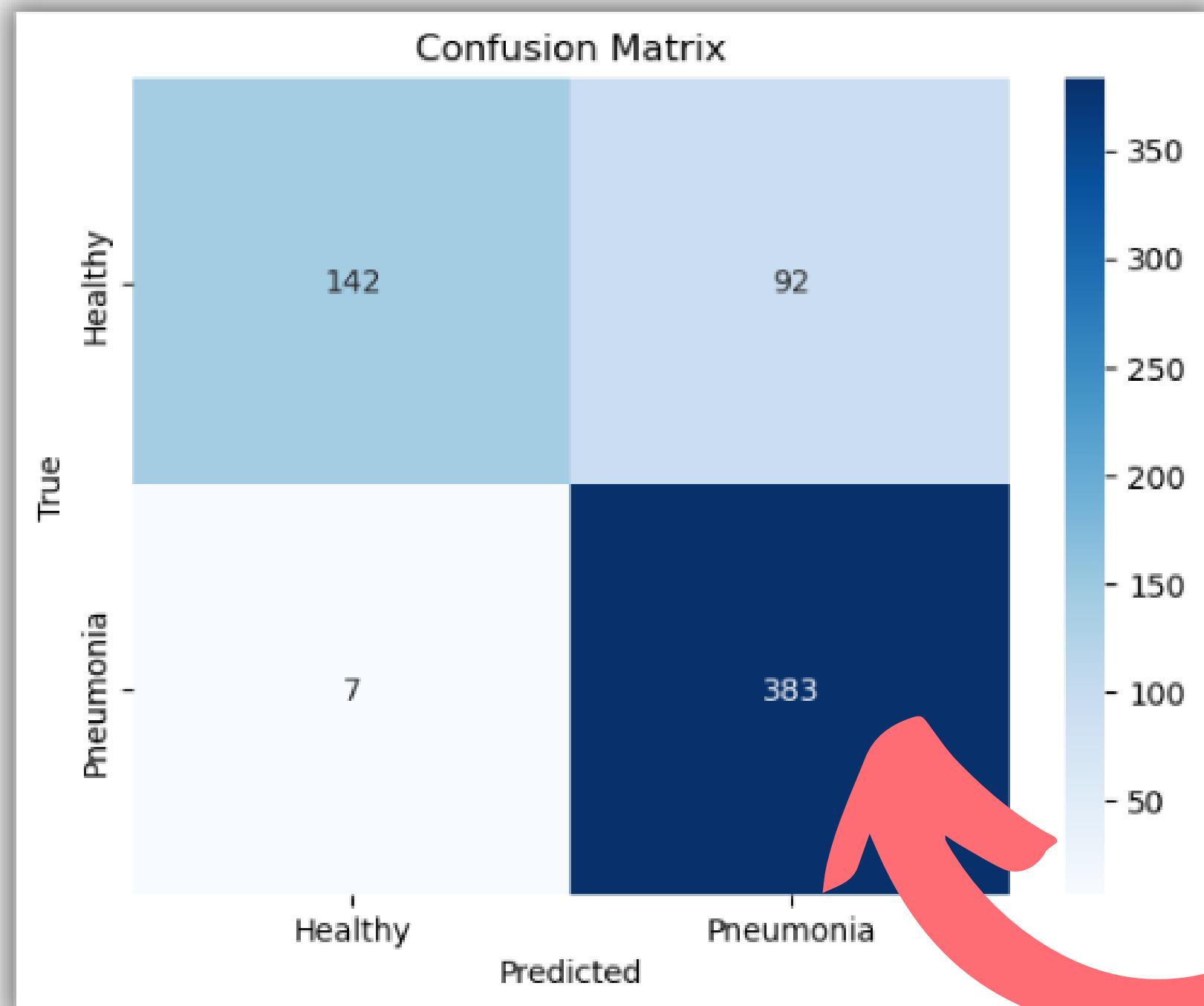
*Final*  
**MODEL**

- Convolutional Neural Networks (CNN)
- Distinct Training, Validation, & Test sets
- Transfer Learning-Xception
- Over 46 Million Parameters

# 000

# RESULTS

- ***True Positive Rate - 98%***
- True Negative Rate- 61%
- False Positive Rate- 39%
- ***False Negative Rate- 2%***
- Accuracy - 84%
- Recall (Pneumonia)- 98%



# CONCLUSION



- We now have a **successful AI-powered pneumonia detection system** using cutting edge technology
- The model was trained **harnessing the power of deep learning**
- The system is **capable of enhancing diagnostic capabilities** for medical systems

# LIMITATIONS & NEXT STEPS

- The model only has a 61% True Negative Rate (Normal cases)
- The model should be trained with further data augmentation techniques and more regularization
- The data should be exposed to more diverse data sets

# THANK YOU

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