



# Pneumonia X-Ray Identification

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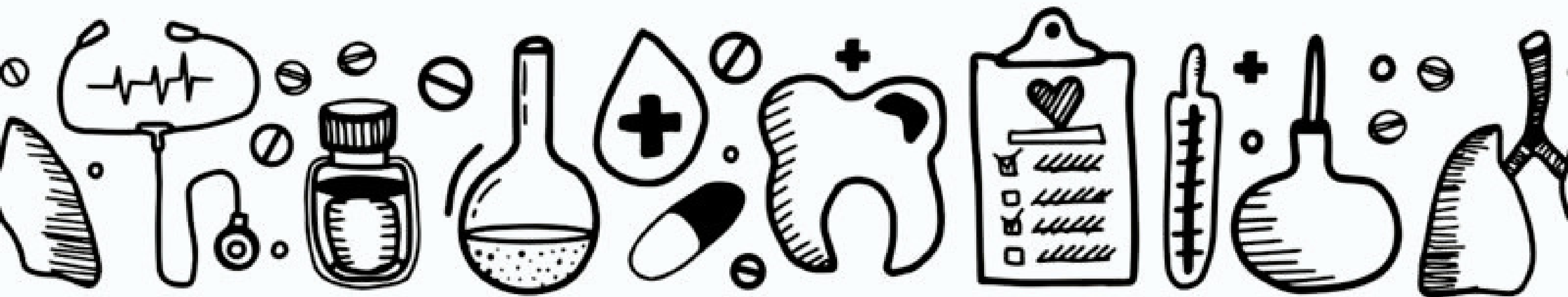
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# Project Overview

A dark blue background with several red, spherical coronavirus particles. One large particle is in the lower-left corner, and several smaller ones are scattered in the upper-left and lower-right areas.

## What is Pneumonia?

- Bacterial or viral infection in the lungs
- World's leading cause of death among children under 5 years of age
- X-ray exam will show white spots in the lungs (called infiltrates)



# Business Understanding

- Machine Learning has shown impressive accuracy in medical imaging
- Predictive models for identifying pneumonia from x-ray's will save time and resources
- Minimize false negatives

# Data Understanding

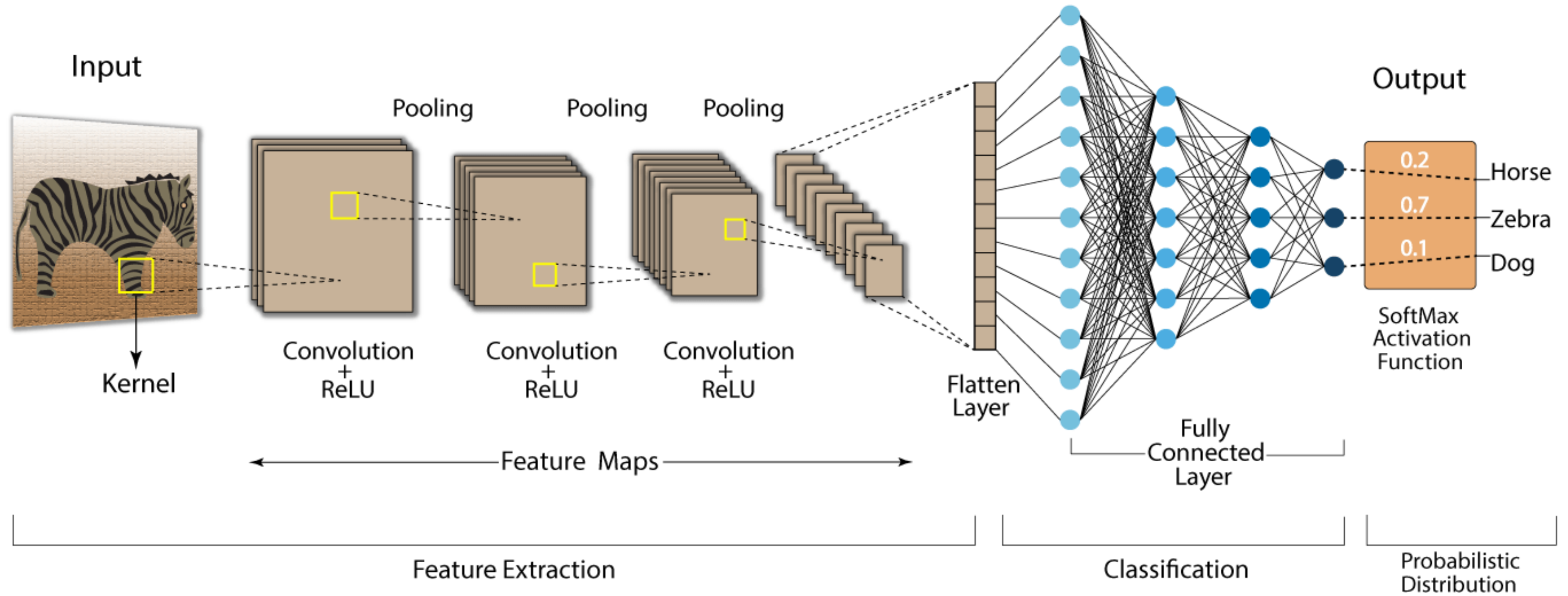
- 4,274 images of chest x-rays with pneumonia
- 1,584 images of chest x-rays without pneumonia



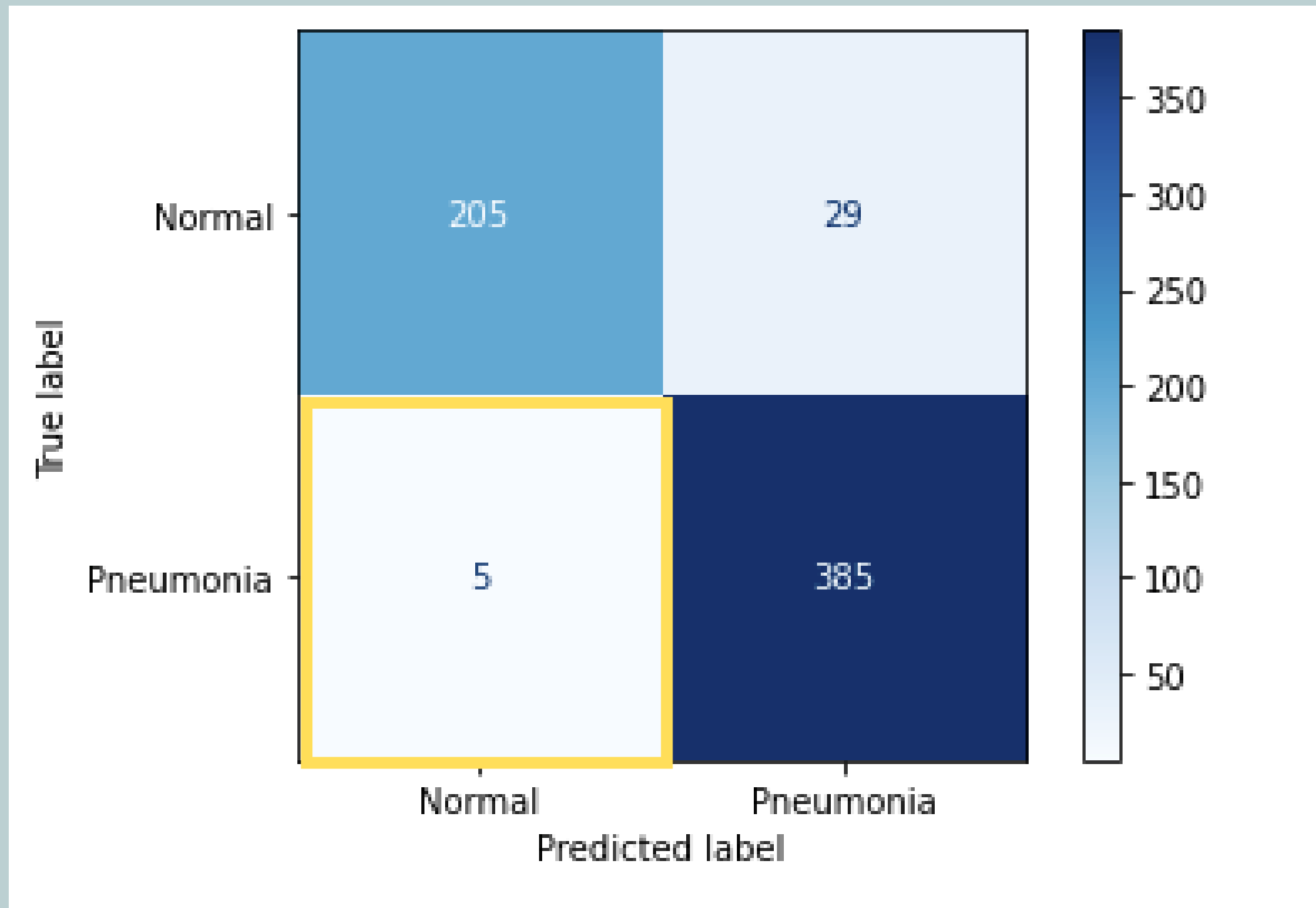


# Modeling & Evaluation

# Convolution Neural Network (CNN)



# Final Results




Accuracy:  
95%

Minimizes false  
negatives

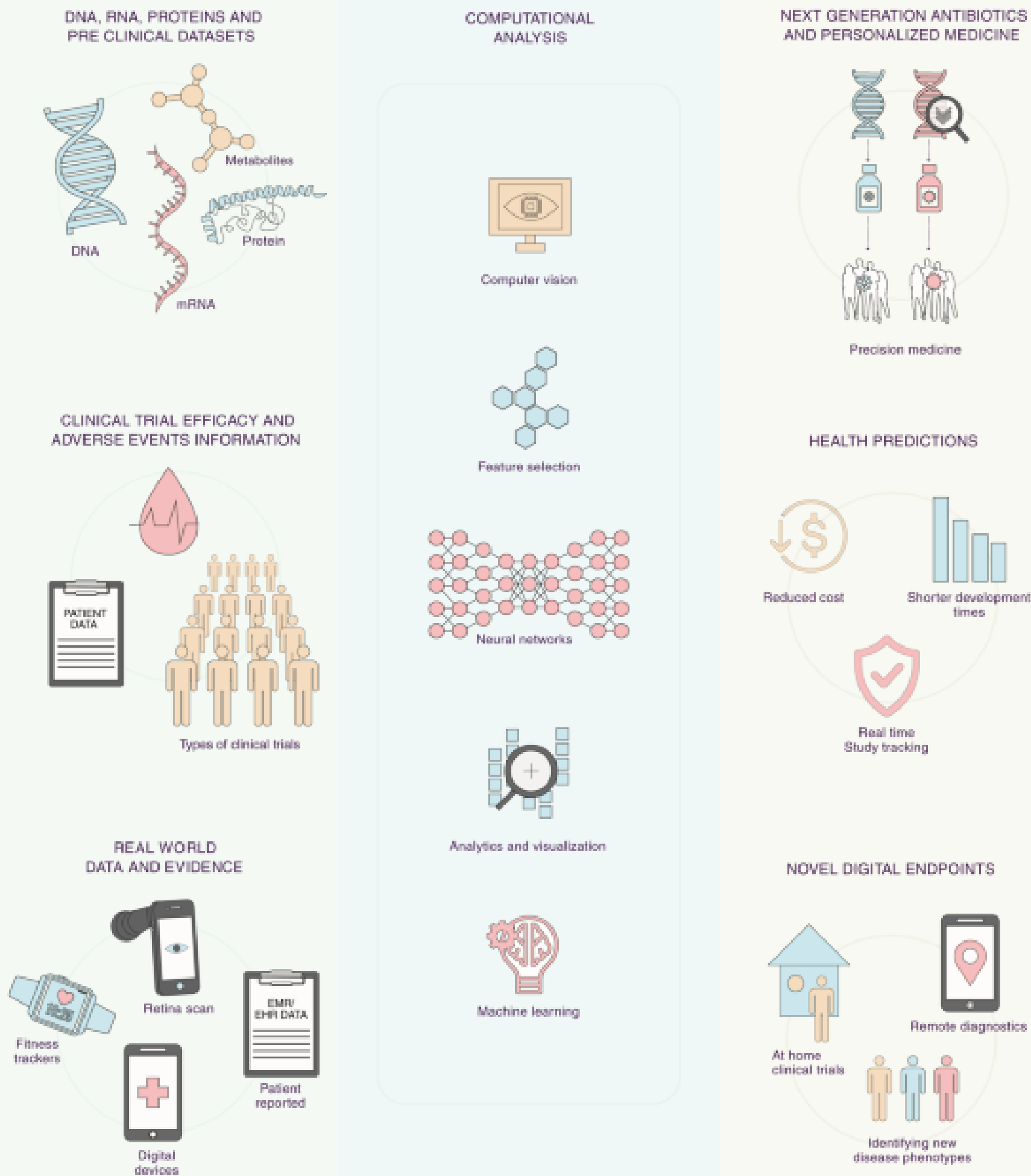
\*Results varied on each model  
execution. Test accuracy ranged  
from 92%-96%





# Recommendations

- Reliable model for classifying pneumonia from chest x-rays
- Minimization of false negatives ensures that we are prioritizing patients health and safety




# Next Steps

- Can be applied to many other x-ray imaging applications (other diseases)
- Expand to use with MRI /CT imaging
- Additional machine learning uses in medicine – Know our technological limits/social responsibility!

# Thank you for your time!

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