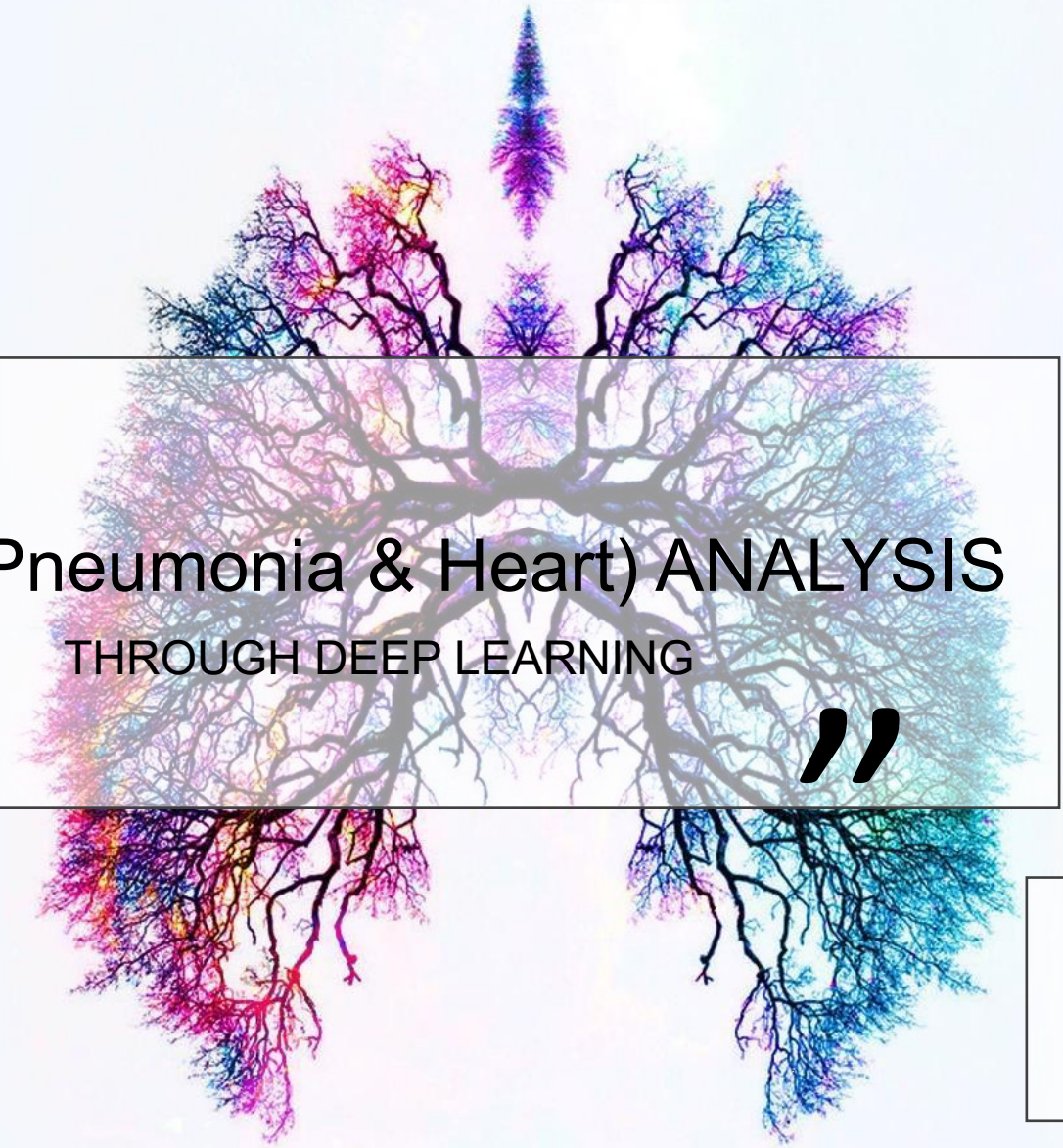

“P&H (Pneumonia & Heart) ANALYSIS THROUGH DEEP LEARNING”

UNDER THE GUIDANCE OF
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ASSISTANT PROFFESOR , CSE

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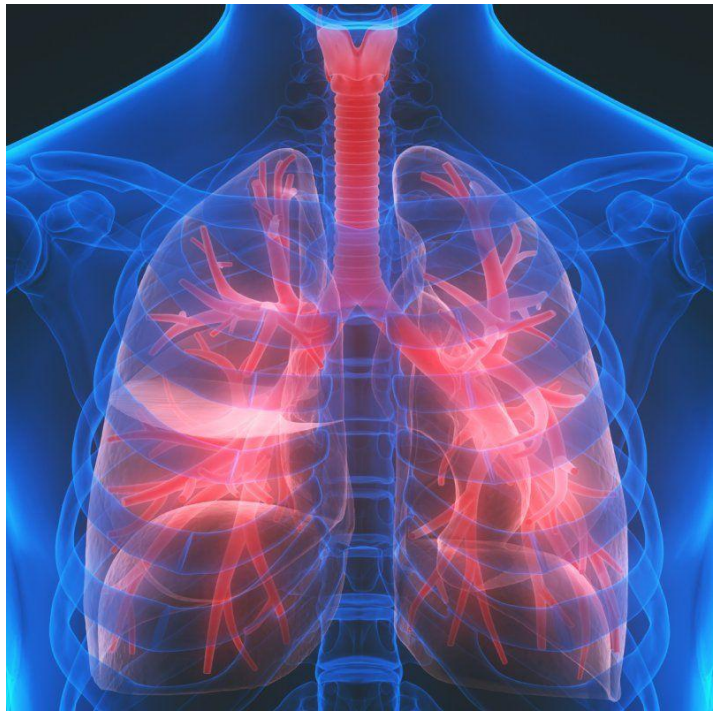
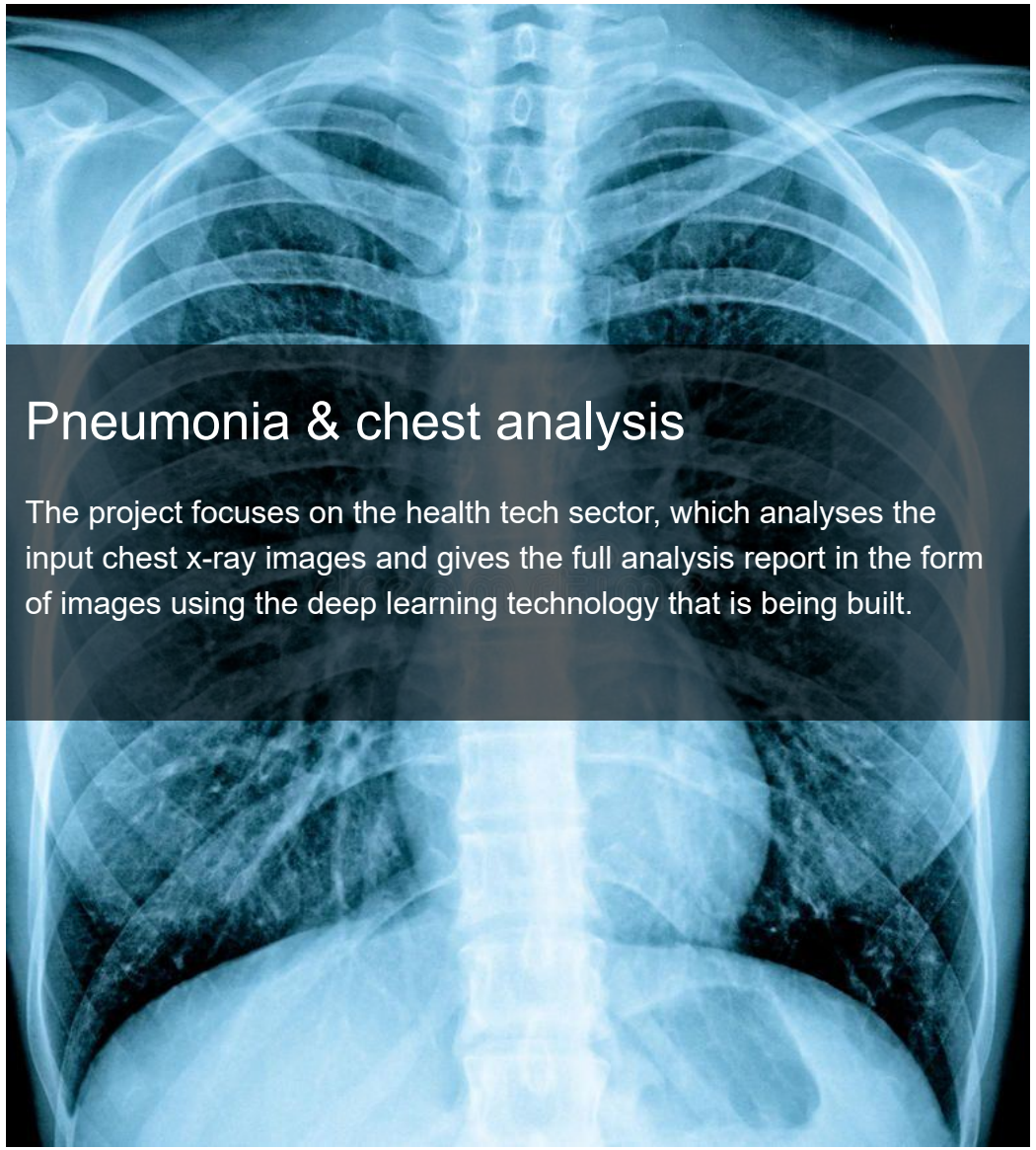
CONTENTS



INTRODUCTION

PNEUMONIA: lung inflammation caused by bacterial or viral infection, in which the air sacs fill with pus and may become solid. Inflammation may affect both lungs (double pneumonia) or only one (single pneumonia).



Pneumonia & chest analysis

The project focuses on the health tech sector, which analyses the input chest x-ray images and gives the full analysis report in the form of images using the deep learning technology that is being built.

01

- **Data collection**

  Compilation of all avilable normal and disease affected images

02

- **Training model**

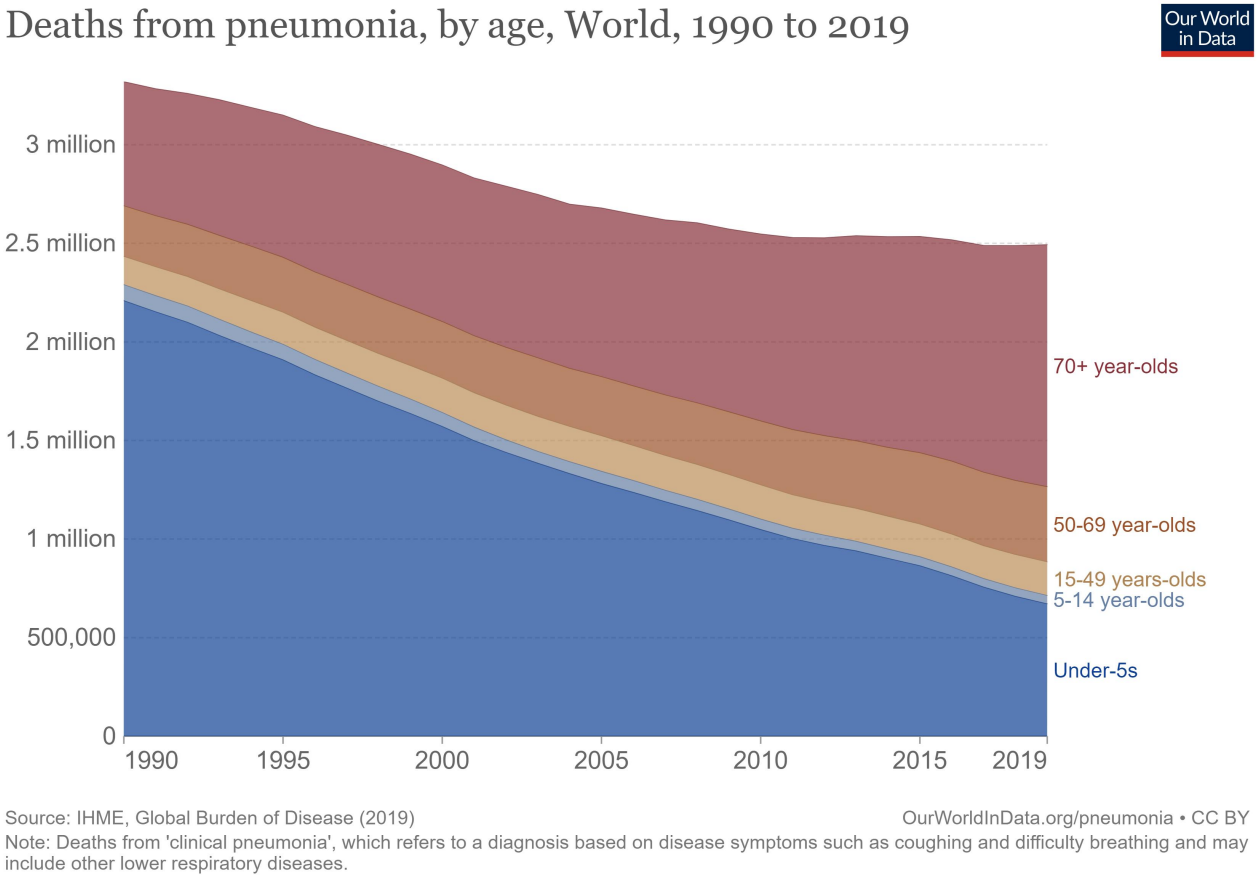
  Picking of Training model

  inputing of x-train and y-train

03

- **Deployment**

  Online and offline SAS Model .



Problem statement

- **Time consumption**
- **Accesability**
- **Financial problem**

Cardiomegaly

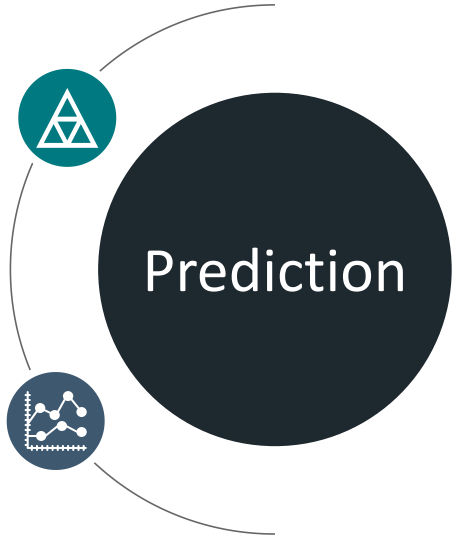
Enlarged heart

Pneumonia

Lung infection caused to air sacs in lungs

“

The solution



Edema

Swelling caused due to accumilation in the body tissues

Mass

a lump formation like tumor

Literature Survey

Surevey and approaches of various projects

Title(System)	Model used	Technique(Approach)	Data Pre processing	Data set	Output metrics
Deep learning for chest X-ray analysis: A survey	CNN	image-level prediction (classification and regression), segmentation, localization, image generation and domain adaptation	All mentioned below	Kaggle challenge	Finding th4 high acc uracy using image-level prediction (classification and regression), segmentation, localization, image generation and domain adaptation
Application of deep learning techniques for detection of COVID-19 cases using chest X-ray images: A comprehensive study	ResNet-34	CNN	Normalization Augmentation	Kaggle challenge	98.33%
PNEUMONIA DETECTION USING CNN THROUGH CHEST X-RAY	ANN,CNN	CNN	Image augmentation	Kaggle challenge	Architecture 5 works better
CHEST X-RAYS IMAGE CLASSIFICATION IN MEDICAL IMAGE ANALYSIS	ResNet-50	CNN	Normalization	ChestX-Ray 14	ResNet-50 achieved state-of-the-art results in four out of fourteen classes.
Deep-Pneumonia Framework Using Deep Learning Models Based on Chest X-Ray	ResNet152V2	CNN		Kaggle challenge	99.22%

LIMITATIONS

The facts

01 No complete solution

02 Proposed or just published

03 Different outputs

CLASSIFICATION

- MOST OF THE MODELS ARE CLASSIFICATION

USED MODELS

- MOST OF THE PROJECTS HAVE COMMON MODELS IMPLEMENTED IN IT

ACCURACY

- BEST OUTPUTS HAVE LOW ACCURACY
- BEST PROPOSED MODELS HAVE HIGH ACCURACY BUT NO OUTPUT

SIMILAR APPROACH

- SAME KIND OF IMAGE CLASSIFICATIONS

PROPOSAL

- SOME OF THEM ARE JUST PROPOSALS OF OUTPUTS

FUTURE BURDEN

- EXPECTING OF MORE MODELS TO IMPLEMENT

DATA SET

DATASET

TRAIN

- CONSISTS of 2 files Normal and diseased x-rays
- Consists of more than 5,218 images in trainig data file

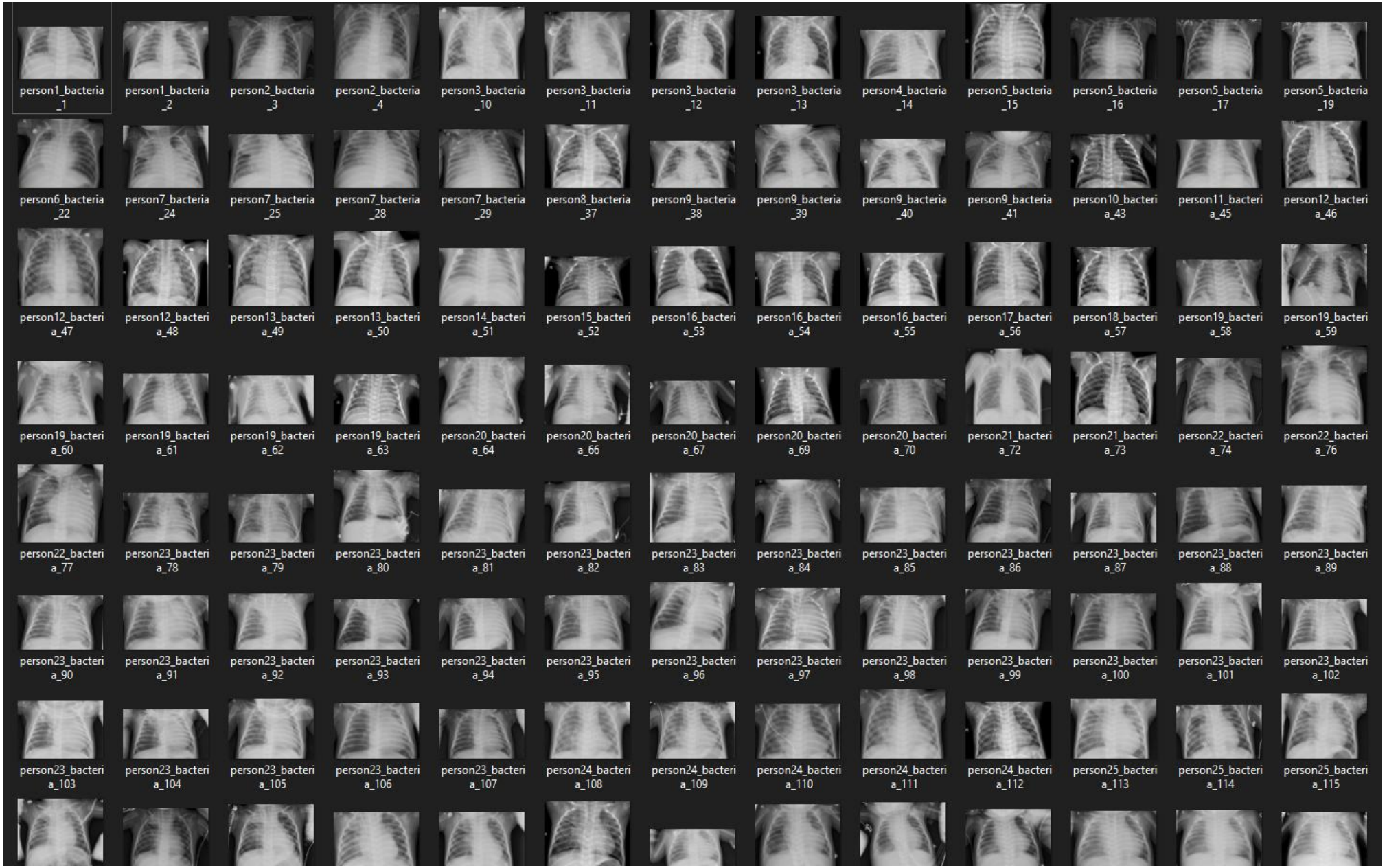
TEST

- Consists of tested images
- Consists of more than 624 images

VAL

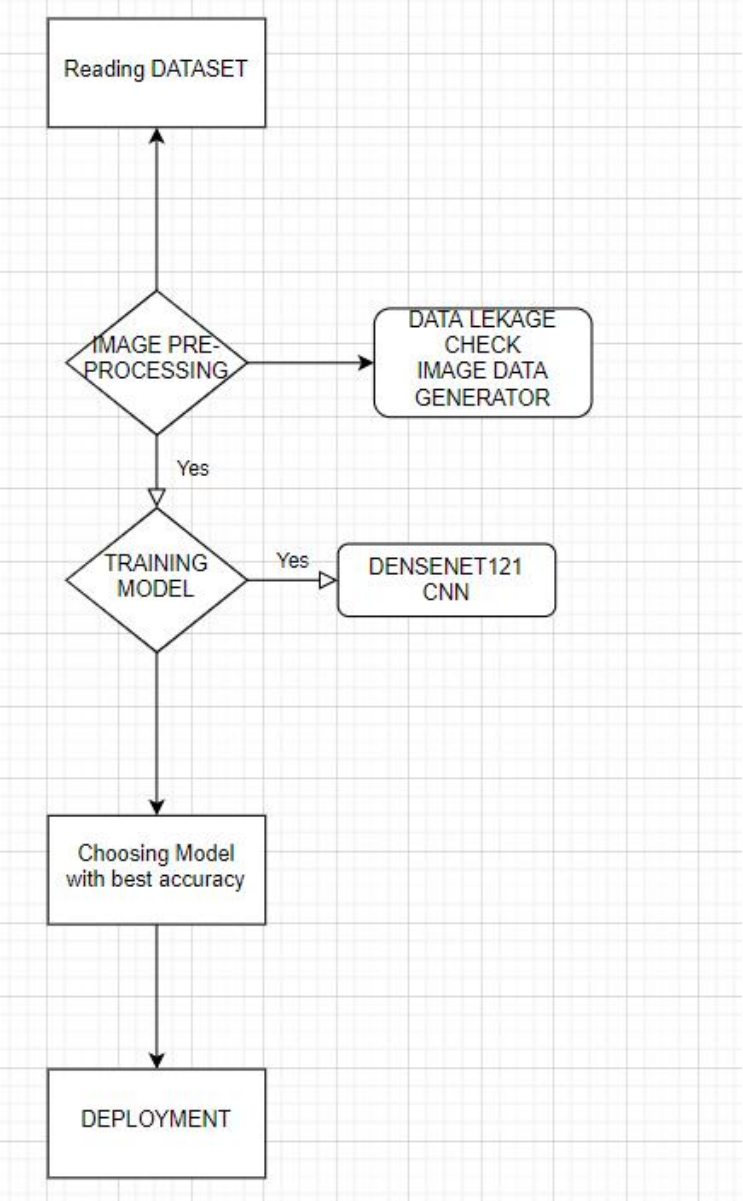
- Consists of augmented data for easy access of images
- Consists of total 18 images for cross referencing

Chest-X-Ray images

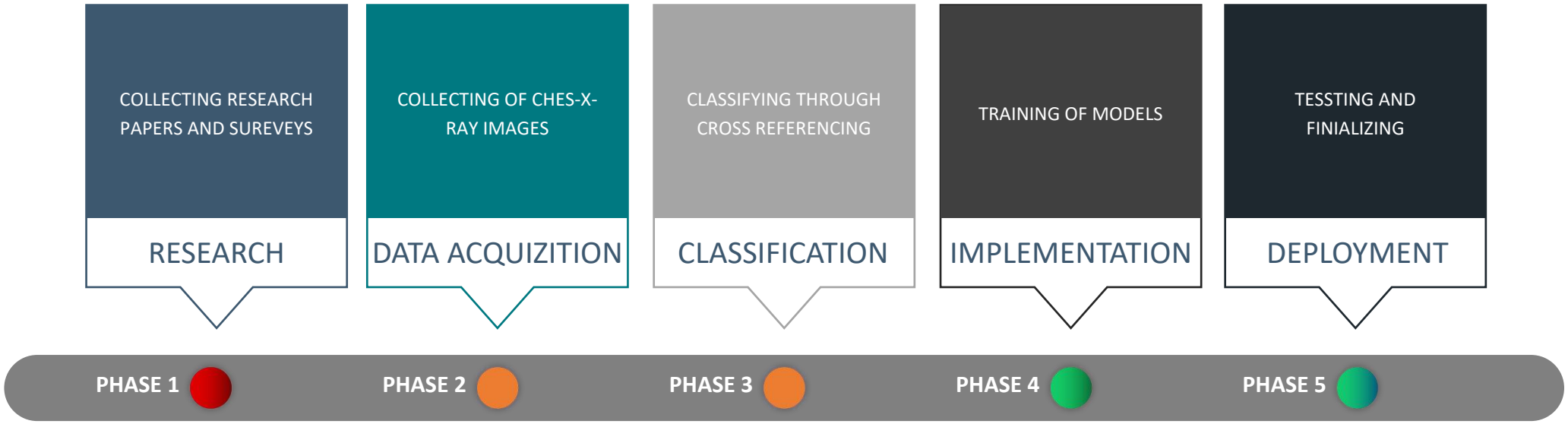


Design and implementation

PROJECT FLOW CHART



PROECT TIME LINE



MODELS

01

DENSENET121

DenseNet is a convolutional neural network where each layer is connected to all other layers that are deeper in the network

02

Custom CNN

A Convolutional Neural Network, also known as CNN or ConvNet, is a class of neural networks that specializes in processing data that has a grid-like topology, such as an image. A digital image is a binary representation of visual data.

03

VGG-16

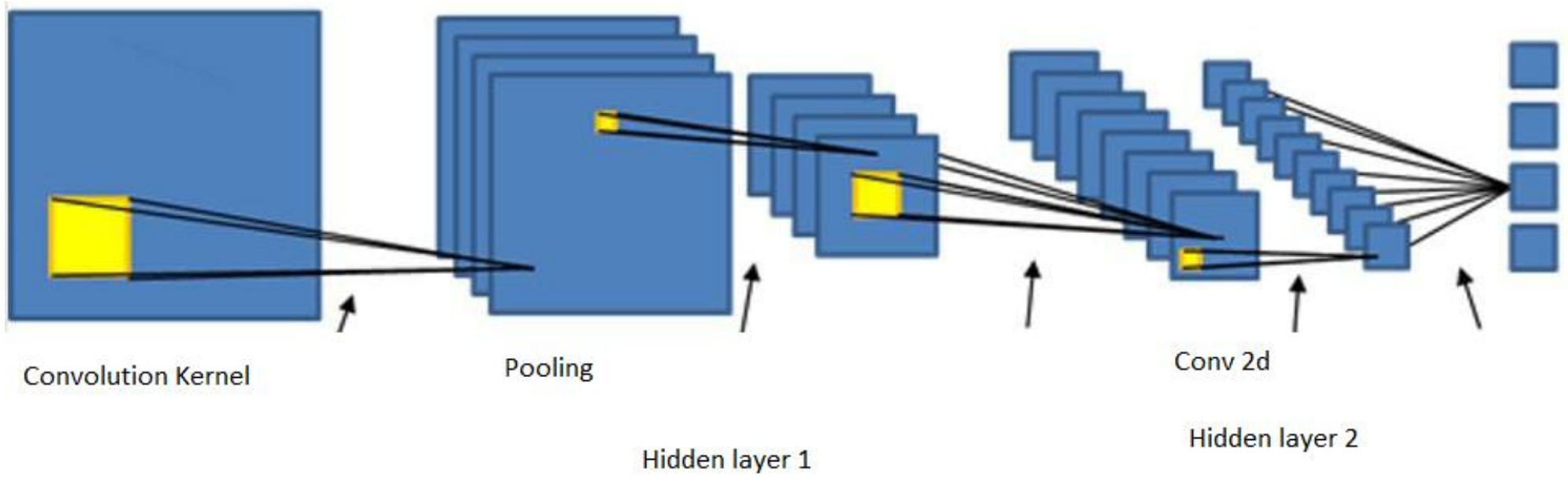
It is considered to be one of the excellent vision model architecture till date. Most unique thing about VGG16 is that instead of having a large number of hyper-parameter they focused on having convolution layers of 3x3 filter with a stride 1 and always used same padding and maxpool layer of 2x2 filter of stride 2

04

ResNet50

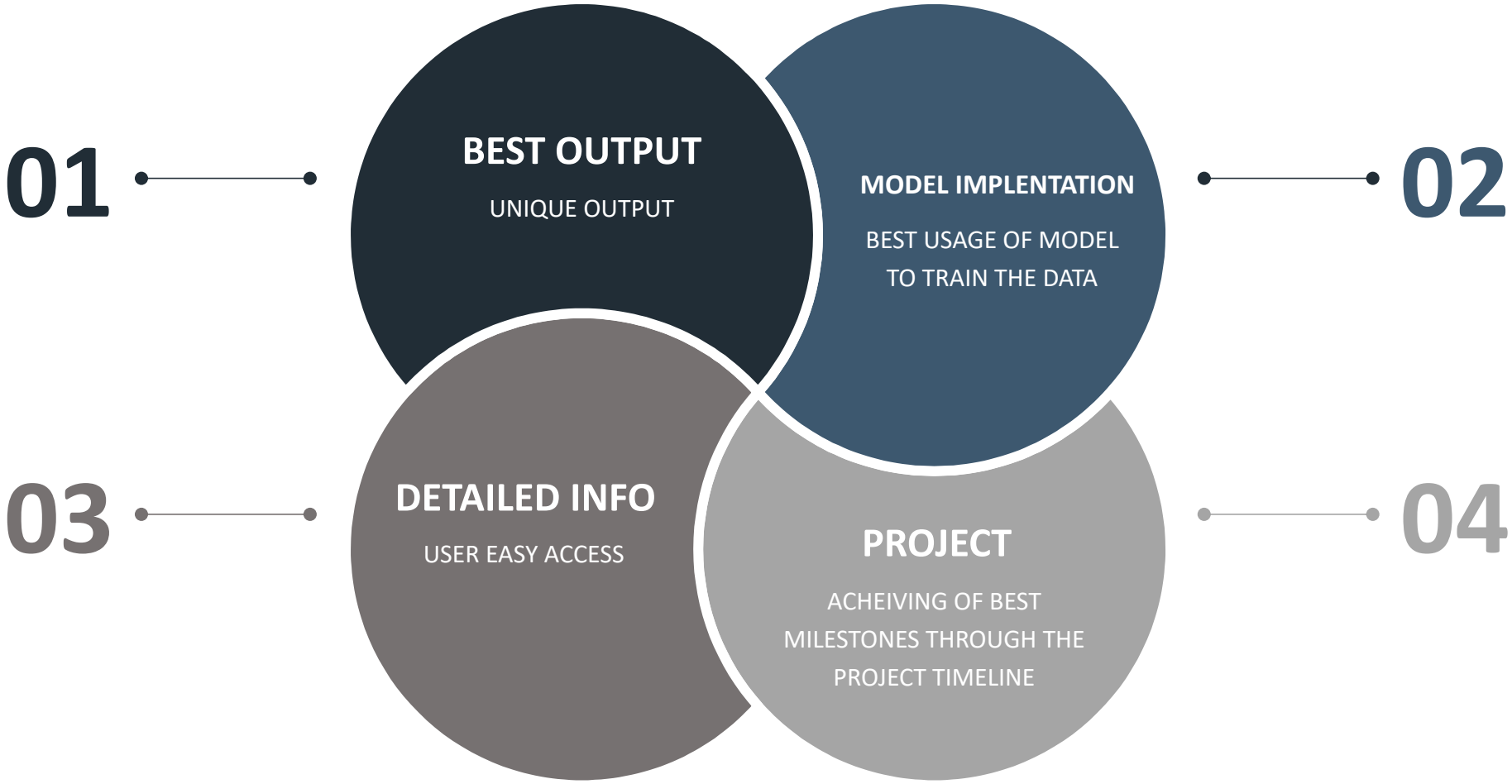
ResNet-50 is a convolutional neural network that is 50 layers deep. ResNet, short for Residual Networks is a classic neural network used as a backbone for many computer vision tasks. The fundamental breakthrough with ResNet was it allowed us to train extremely deep neural networks with 150+layers.

CNN ARCHITECTURE

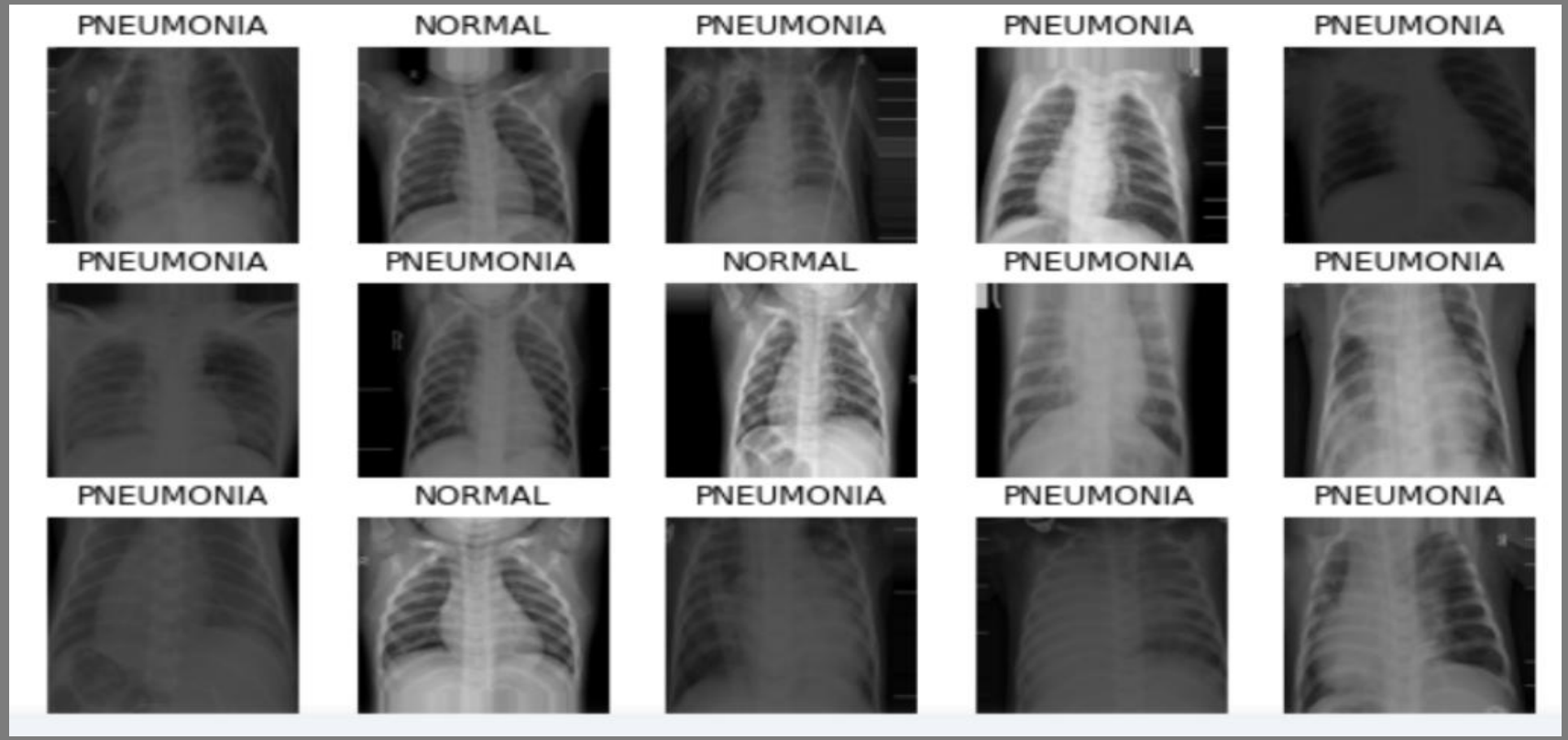


4

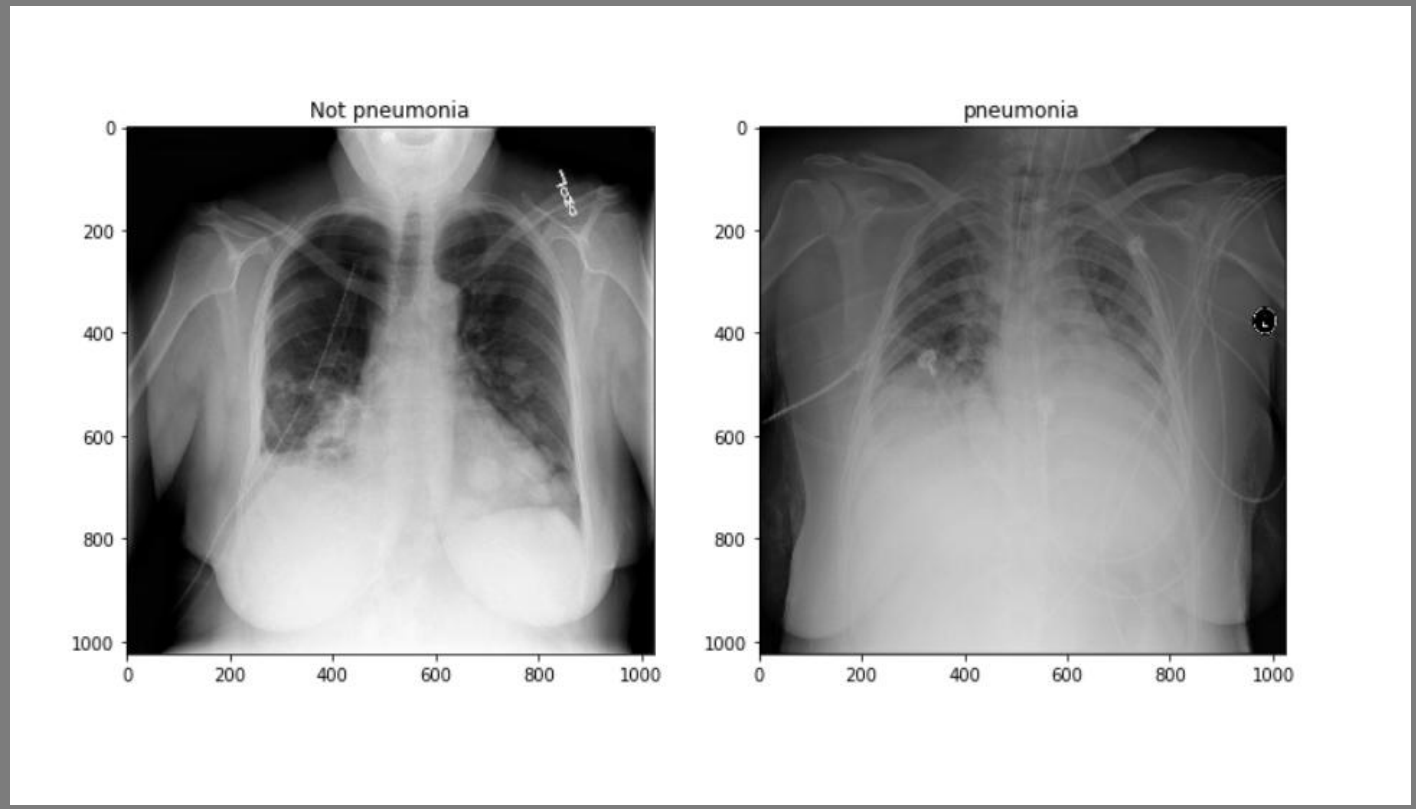
Conclusion


01
BEST OUTPUT
UNIQUE OUTPUT
02
MODEL IMPLENTATION
BEST USAGE OF MODEL
TO TRAIN THE DATA
03
DETAILED INFO
USER EASY ACCESS
04
PROJECT
ACHEIVING OF BEST
MILESTONES THROUGH THE
PROJECT TIMELINE

Existing solutions



Existing solutions



“THANK YOU”

BREATHE