INDIAN INSTITUTE OF INFORMATION TECHNOLOGY KOTA

PYTHON PROJECT

Detection of Pneumonia

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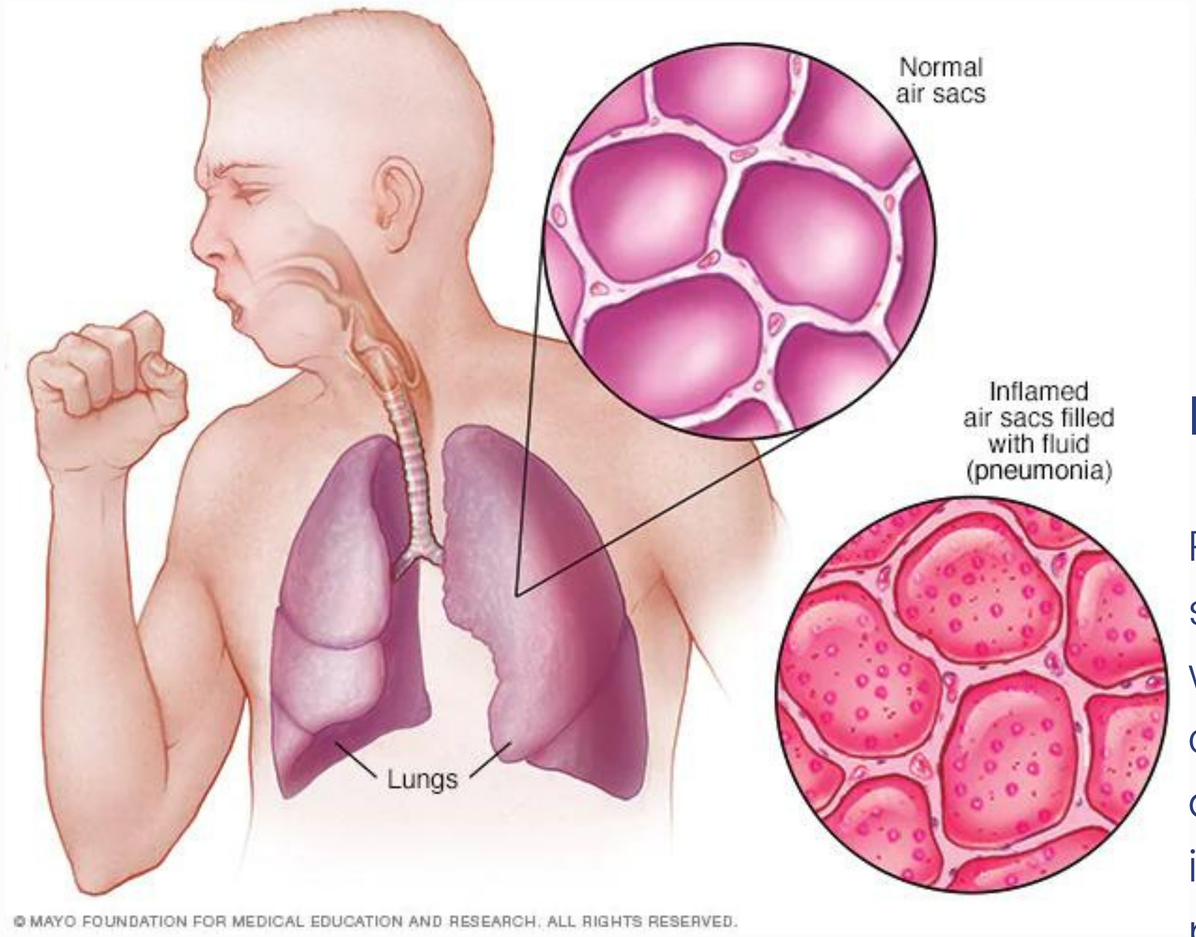
Our Agenda for Project

List of key concepts

- What is Pneumonia Disease?
- Pneumonia Sample & Applications
- Phases of making project
- Implementation of Our Code
- Detection Of Pneumonia Sample
- Prevention to avoid disease

What is Pneumonia Disease?



Infection in Our Lungs

Pneumonia is an infection that inflames the air sacs in one or both lungs. The air sacs may fill with fluid or pus (purulent material), causing cough with phlegm or pus, fever, chills, and difficulty breathing. A variety of organisms, including bacteria, viruses and fungi, can cause pneumonia

WORLD HEALTH ORGANISATION

10 million+

Cases per year in India

Health Risks of Pneumonia

Respiratory System

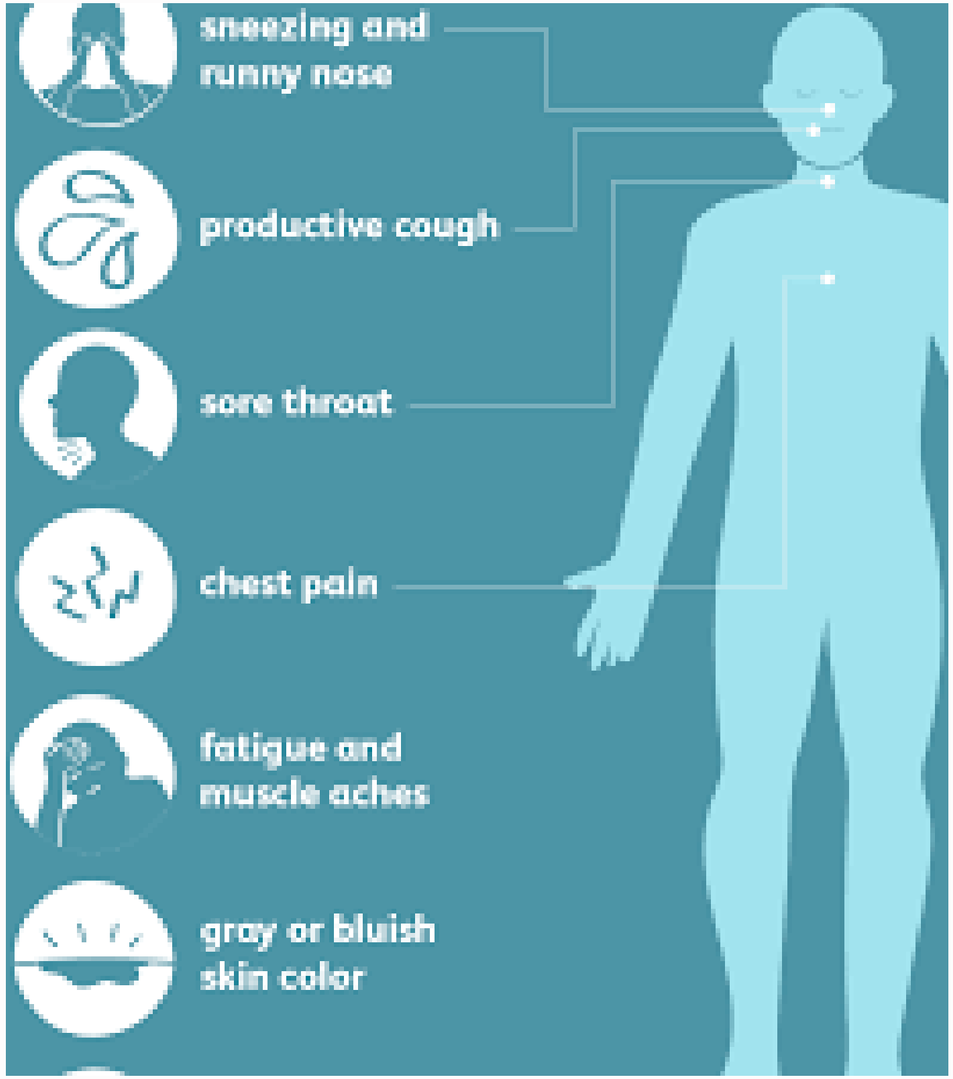
Once the infection gets into the lungs, inflammation causes air sacs, called alveoli, to fill up with fluid or pus. This can lead to trouble breathing, coughing, and coughing up yellow or brown mucus.
Breathing may feel more difficult or shallow. You may experience chest pain when you take a deeper breath.
If the infection and fluid buildup get severe enough, it can stop the lungs from doing their job.

Circulatory System

Septic shock can cause very low blood pressure and a reduced blood flow to the body's major organs.There's also some evidence that having pneumonia puts someone at a higher risk for having a heart attack. This risk lasts through recovery and can remain higher than normal even years after the infection.

Urinary System

If left untreated, a urinary tract infection can spread and lead to pneumonia. However, this isn't as common. The infection can also be carried from the lungs through the bloodstream and into the urinary tract.



How?

Using Deep learning(CNN) and implementation with tensorflow, we will be able to easily, more rapidly diagonose Pneumonia disease using chest scan.

Phase of Making Project

Phase 1:
Understanding the problem and focusing on how to implement

Understanding the problem
Getting database
preparing the environment

Phase 2:
Making a deep learning model using CNN. Running the sample

Splitting dataset in test, train and validation set
Compiling the model

Phase 3:
Training the model and Increasing Accuracy

Training the model
Improving accuracy[84% to 92%].

Phase 4:
Deploying the model into webpage using Flask

Creating environment for Deployment of CNN model
Writing code and routing
Running sample

Detection of Pneumonia : How to get result

1. **Collect test sample.**

   Collect the sample of the scan of lungs of person

2. **Upload image.**

   Deployment of image.

3. **Get results in few seconds.**

   Results of sample upto maximum presicion

Python Implementation

Files

Model
model.h5

Python file
app.py

Template
index.html
base.html

Static
main.js
main.css

Upload
All the uploaded images

Visual Studio Code

Problems

Learning Deep learning
Installing Modules and libraries
Python 3.10 is not compatible with tensorflow 2.7
Deploying model in web page

Reference

Mastering deep learning - Udemy course
Deploying Deep learning model - Krish Nair
Stackoverflow
Deeplizard - YouTube channel

THANK YOU