**Project title:**

# CliniScan: "Lung Abnormality Detection on Chest X ray Using AI "

## Infosys springboard 6.0 virtual internship

By:

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# 1. PROJECT REVIEW:

The project **"CliniScan – Lung Abnormality Detection on Chest X-Ray Using AI"** focuses on applying artificial intelligence techniques to medical imaging, specifically chest X-ray analysis. Chest X-rays are one of the most commonly used diagnostic tools in healthcare, but interpreting them requires expert radiologists. This project aims to assist the diagnostic process by automatically identifying potential lung abnormalities such as nodules, opacity, consolidation, and other findings.

## 2. Objectives of Milestone :

• Understand the dataset structure and DICOM format.

• Perform initial data loading and exploration.

• Visualize sample X ray images.

• Display bounding boxes for images with abnormalities.

• Apply preprocessing steps: normalization, CLAHE enhancement, denoising, and border cropping.

- Convert processed images to PNG and resize them for model input.

## 3.Project Workflow

In this milestone, I worked on the **VinBigData Chest X-ray Abnormalities dataset**, which contains **DICOM** medical images and a **CSV file with bounding-box annotations**.

. It includes visualization,grayscale,normalizing and preprocessing and removing noise by denoising.I used os,matplotlib ,numpy and tqdm libraries for visualization and preprocessing. This makes to train the model effectively for detecting abnormalities on chest x-ray.

## 4.Environment Setup and Process Steps on Kaggle:

**The entire workflow was carried out on Kaggle Notebooks,** which provides a ready-to-use Python environment with libraries like NumPy, Pandas, OpenCV, and pydicom pre-installed. After setting up the notebook, I imported the required libraries and used the /kaggle/input directory to automatically

detect all DICOM files in the VinBigData Chest X-ray dataset.

**.Visualization:** I verified the dataset structure by listing files, loading sample DICOM images, and visualizing them using matplotlib.

**.Preprocessing:** Including normalization,resizing into 224*224 , contrast enhancement (CLAHE), denoising, cropping black borders, converting grayscale to RGB, and resizing images. Each step was executed and tested inside the Kaggle environment, and the final processed images were saved as PNG  for further model training.

## 5.Outcomes of milestone:

Successfully completed image visualization and preprocessing for 200 DICOM images. These processed images will now be used for the next stage: AI model training for abnormality classification and detection.

# Conclusion:

This milestone focused on preparing the VinBigData chest X-ray dataset for the Cliniscan project. I visualized DICOM images, understood their metadata, and applied key preprocessing steps like normalization,

enhancement, denoising, cropping, and resizing. The dataset is now clean, standardized, and ready for the next stage of model training.