VARDHAMAN COLLEGE OF ENGINEERING, HYDERABAD

Autonomous institute affiliated to JNTUH

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Title: Lung Cancer Prediction using Machine Learning and Imaging techniques.

BATCH ID : 19MPCS-A18

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Guide Details

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Mini Project Review-1 Outlines

- Main idea of the Project
- Existing System Vs Proposed
- Proposed Project Objectives
- Proposed Project Outcomes
- Process Model
- Architectural Diagram
- Software and Hardware Requirements
- Summary of First Review

Main idea of the Project

- An early detection can give a patient a better chance to cure and recover.
- Lung disorders are responsible for a significant number of diseases that impact people all over the world.
- Lung cancer detection generally deals with classifying an image into healthy lungs or disease infected lungs.
- In this model we first design an convolutional neural network model and then offer the data, which is x-rays of the lungs with and without diseases, as well as the end output, which is whether the lungs are diseased or not
- Our model will built on supervised learning, in which we will train the model and then apply transfer learning to make further predictions.
- Our algorithm will determine if the person is suffering from cancer or not.

Existing System Vs Proposed

Existing System

Cancer Type	Author	Input Images	Deep Learning Model	Dataset
Lung Cancer	Christoph et al	CT Images	ResNet18&CNN	Lung 1 &TCIA
	Lakshmanaprabhu et al	CT Images	ODNN & LDA	Standard CT database
	Worawate et al	Chest X-ray	DenseNet-121	JSRT
	Gomathi et al	CT scan	ELM	Large Dataset
	Janee et al	CT Images	SVM	UCI MLDB

Proposed System

- In this proposed system we are trying to find patterns in x-ray images which are of greyscale. Patterns we find will be useful for predictive analysis of various lung cancer in the very initial stages such that they can be cured early .

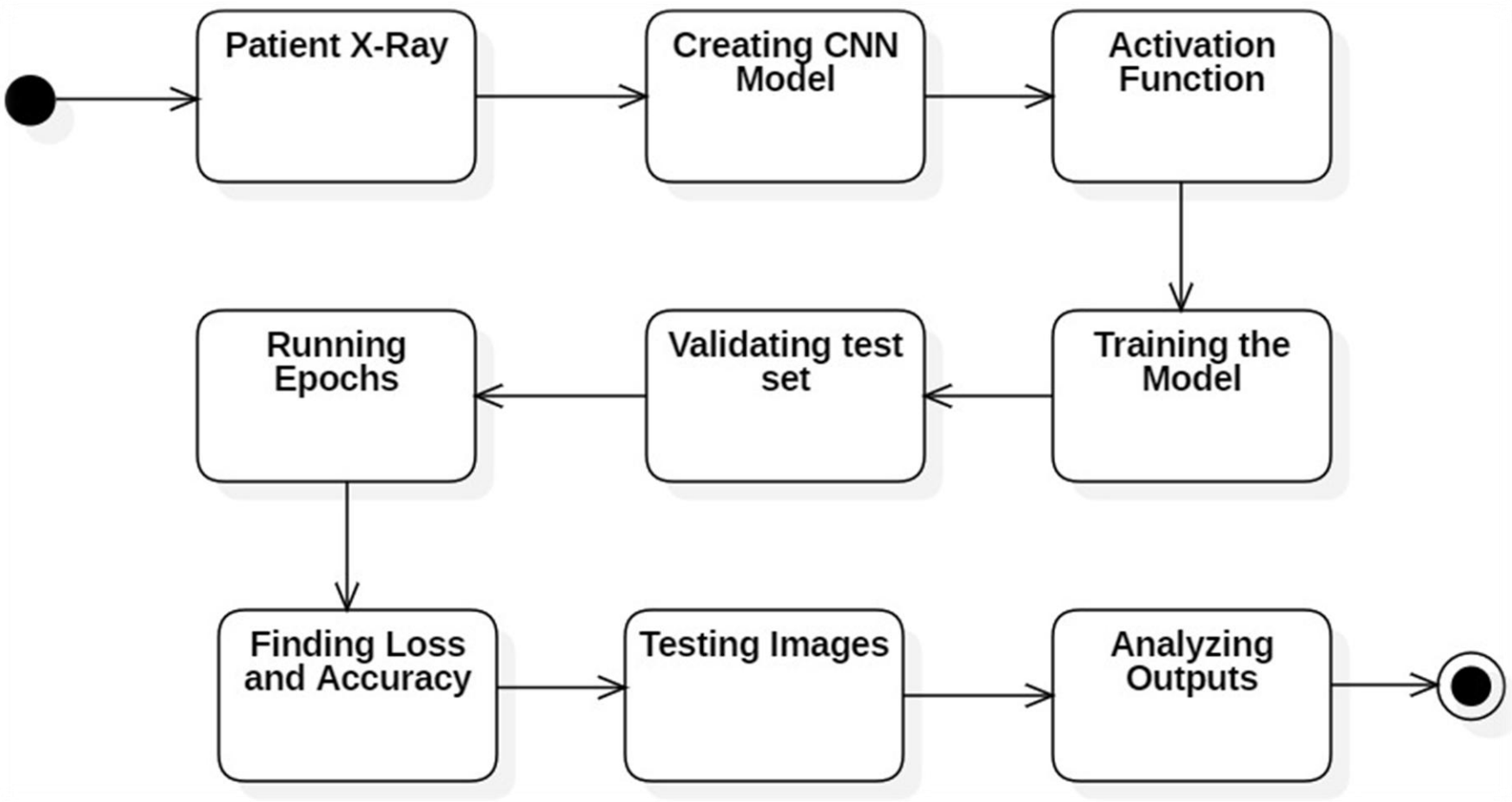
Proposed Project Objectives

- The main objective of the project is to detect the lung cancer accurately from the x-rays of lungs of different patients so that they can be cured in the initial stages .

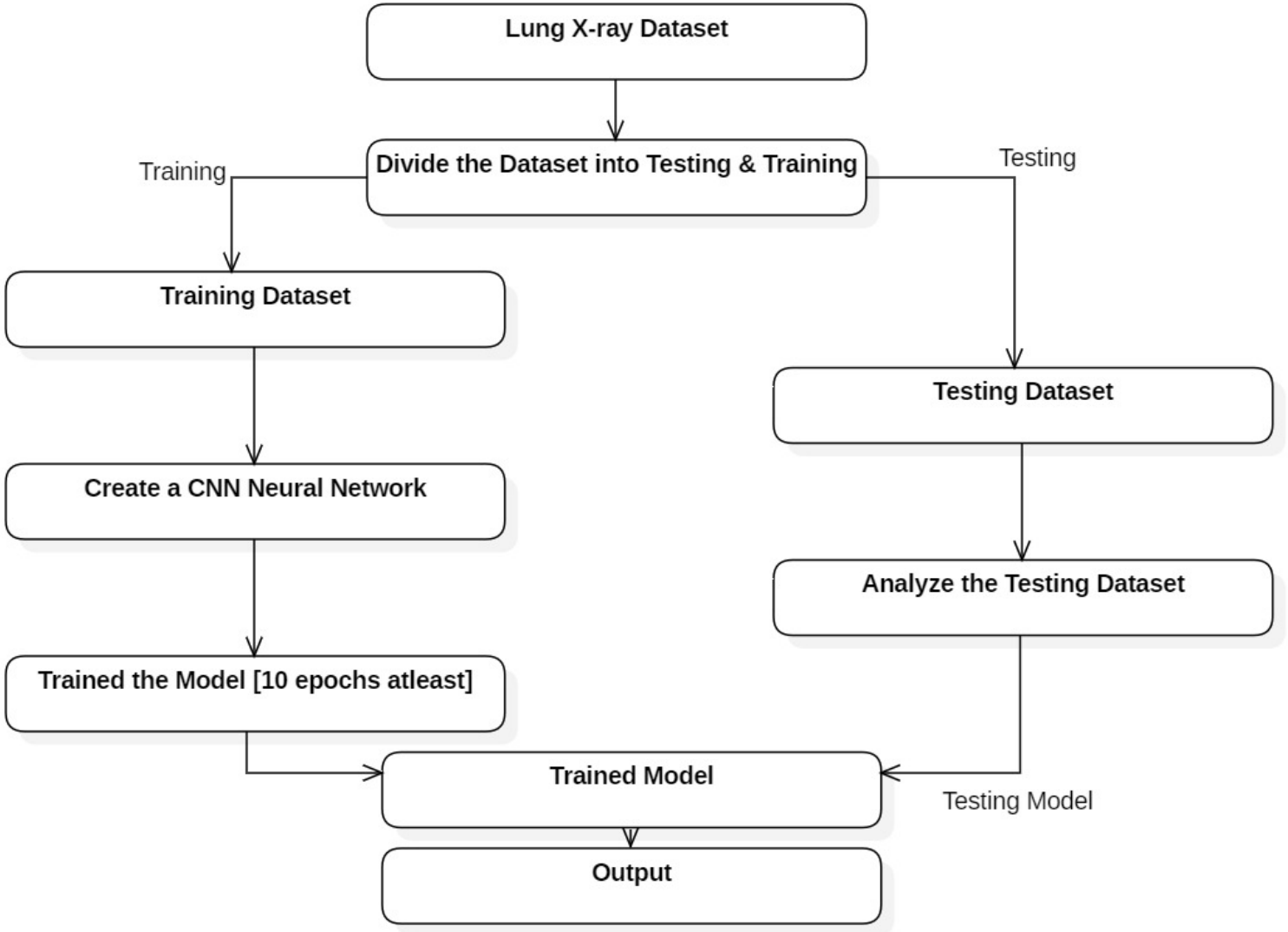
Proposed Project Outcomes

- A machine learning model that can predict whether or not a person has a lung cancer.
- The model can run on any platform that has Python and other libraries installed.

Process Model



Architectural Diagram



Software and Hardware Requirements

Software Requirements

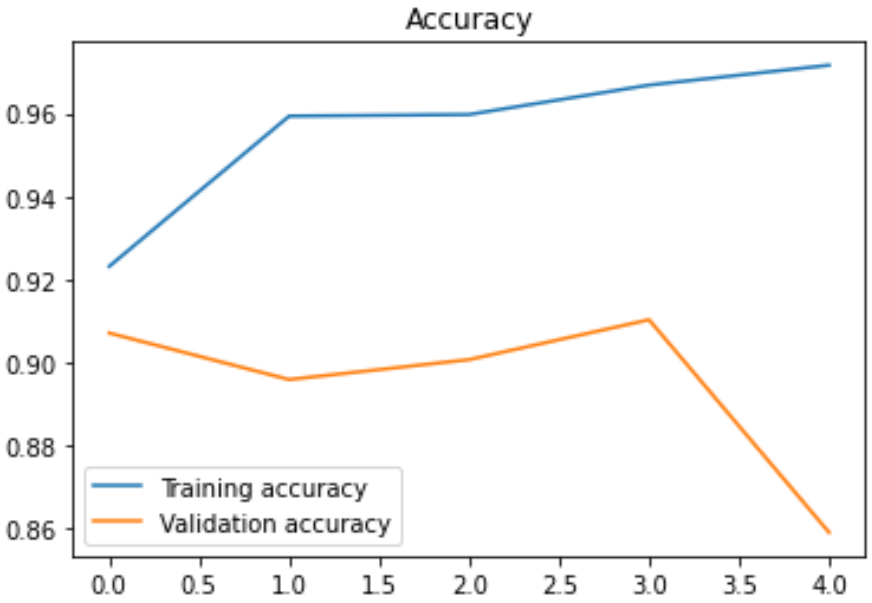
- Python above version 3.6
- Datasets

Hardware Requirements

- Random Access Memory (RAM): 4 GB or above
- Central Processing Unit (CPU): 1.7 GHz Processor and above
- Operating System (OS): Windows 8 and above

CNN - Activation Function : Softmax

➢ **GRAPHS OF CNN - Activation Function using Softmax: -**

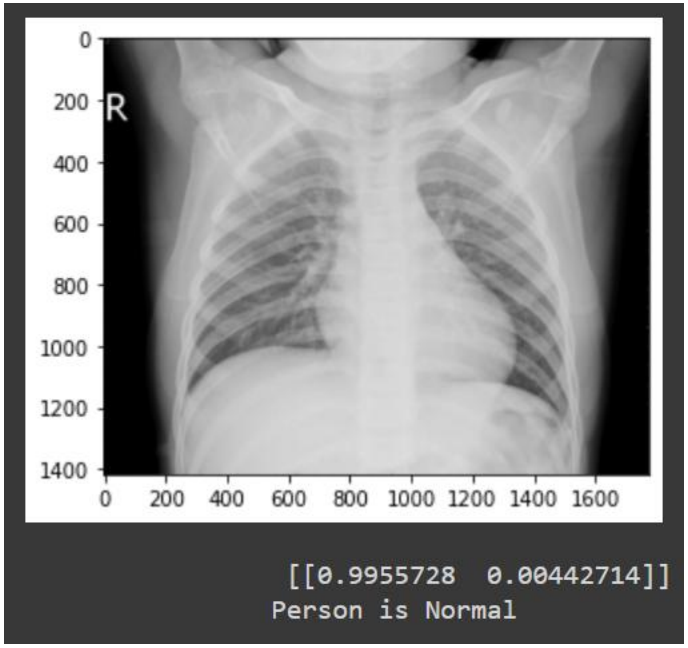


CNN - Activation Function : Softmax

➢ **OUTPUT: -**

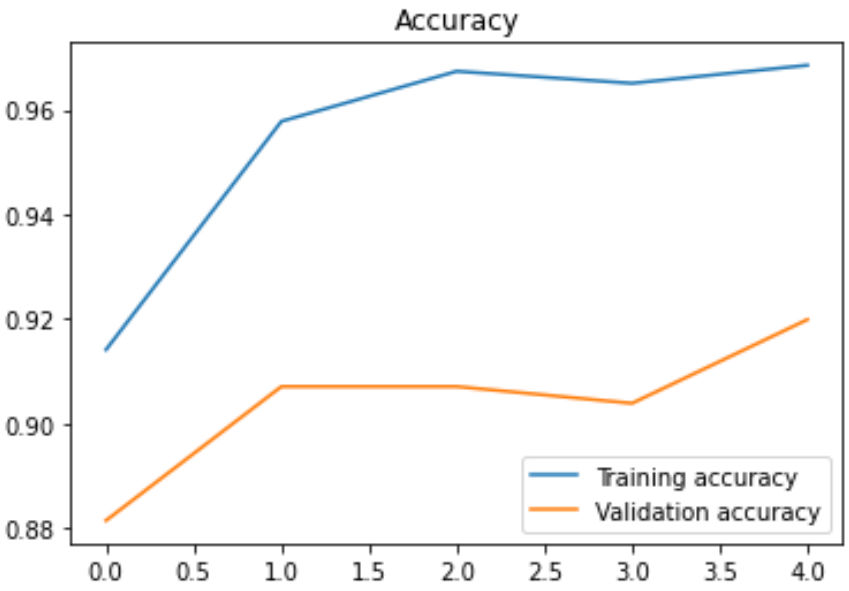
```
1 print("Accuracy after fitting: {:.2f}%".format(r.history['val_accuracy'][-1]*100))
```

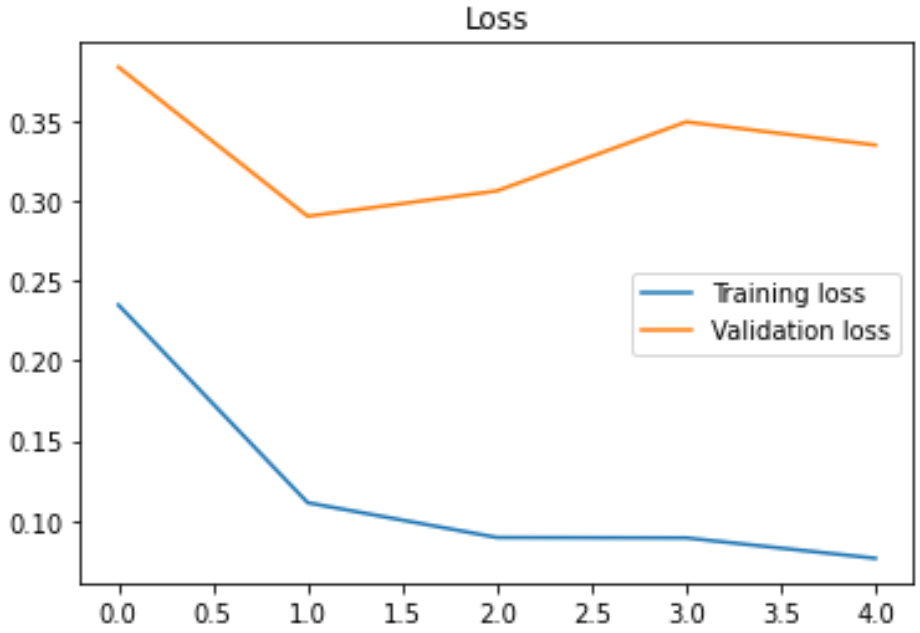
```
Accuracy after fitting: 85.90%
```



CNN - Activation Function Sigmoid :

➢ GRAPHS OF CNN - Activation Function using Sigmoid: -



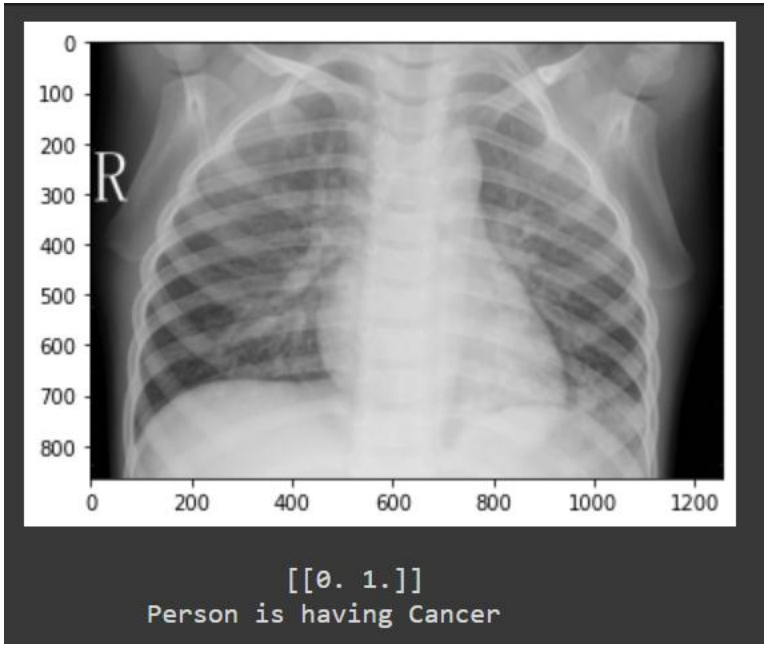


CNN - Activation Function : Sigmoid

➢ **OUTPUT: -**

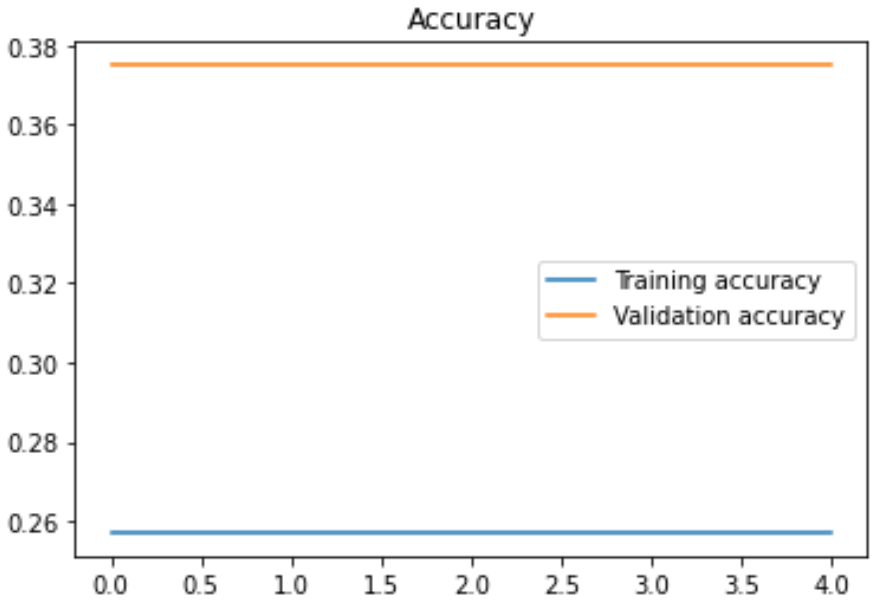
```
1 print("Accuracy after fitting: {:.2f}%".format(r.history['val_accuracy'][-1]*100))
```

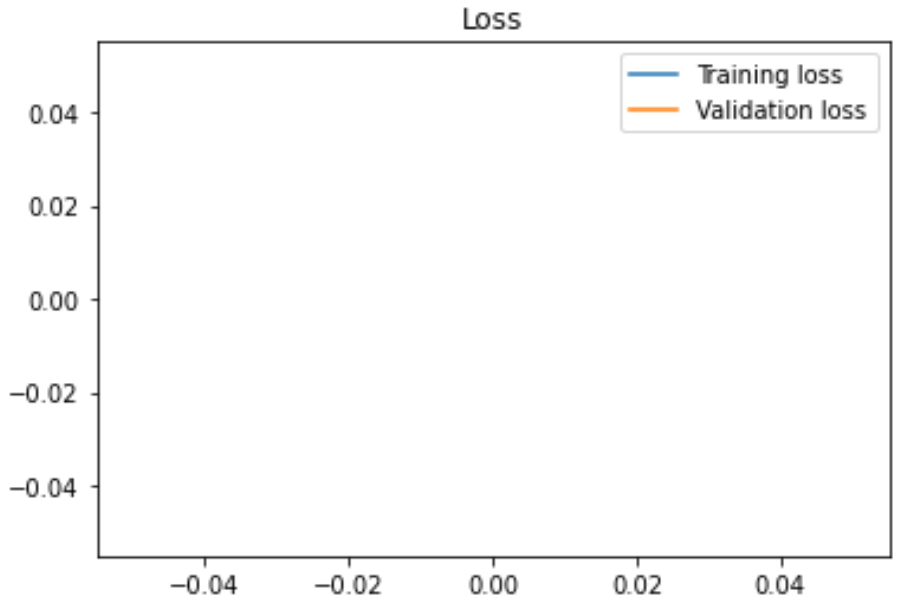
```
Accuracy after fitting: 91.99%
```



CNN - Activation Function Relu:

➢ GRAPHS OF CNN - Activation Function using Relu: -



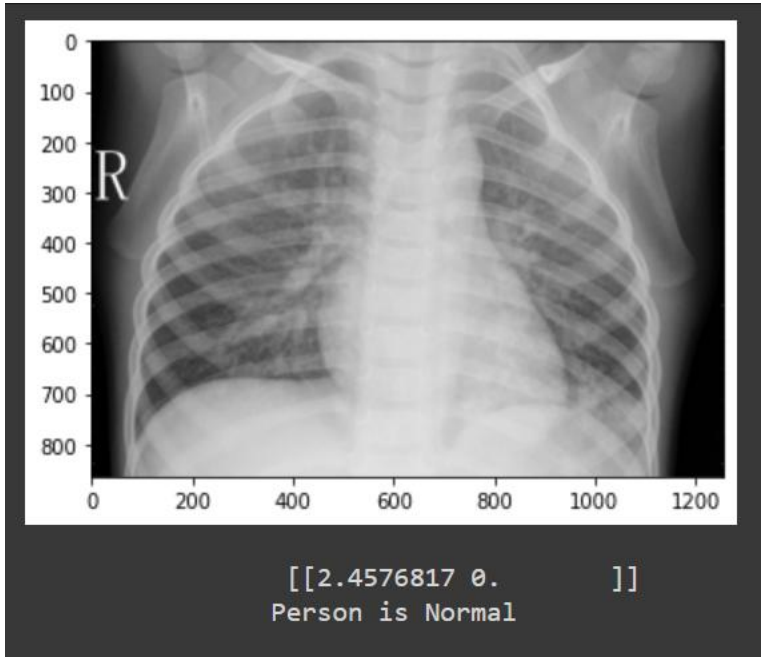


CNN - Activation Function Relu :

➢ **OUTPUT: -**

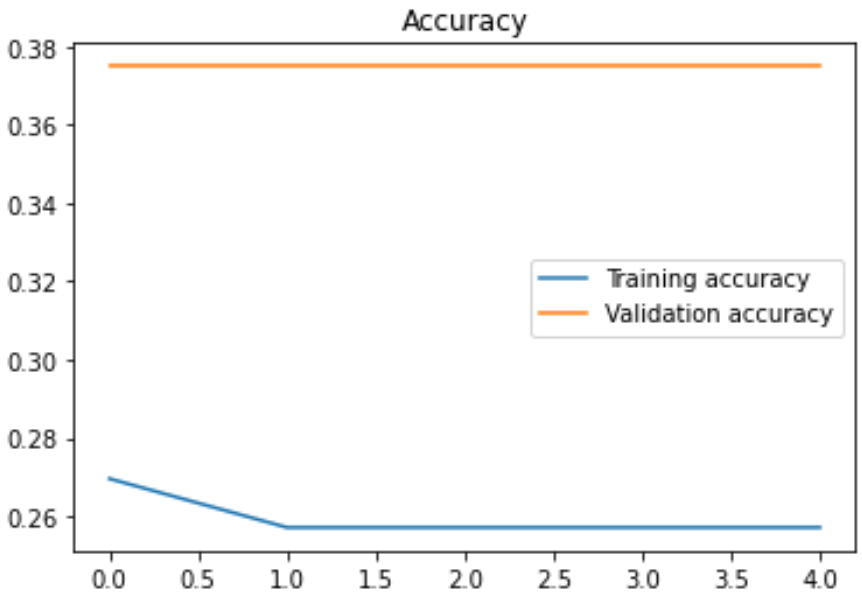
```
1 print("Accuracy after fitting: {:.2f}%".format(r.history['val_accuracy'][-1]*100))
```

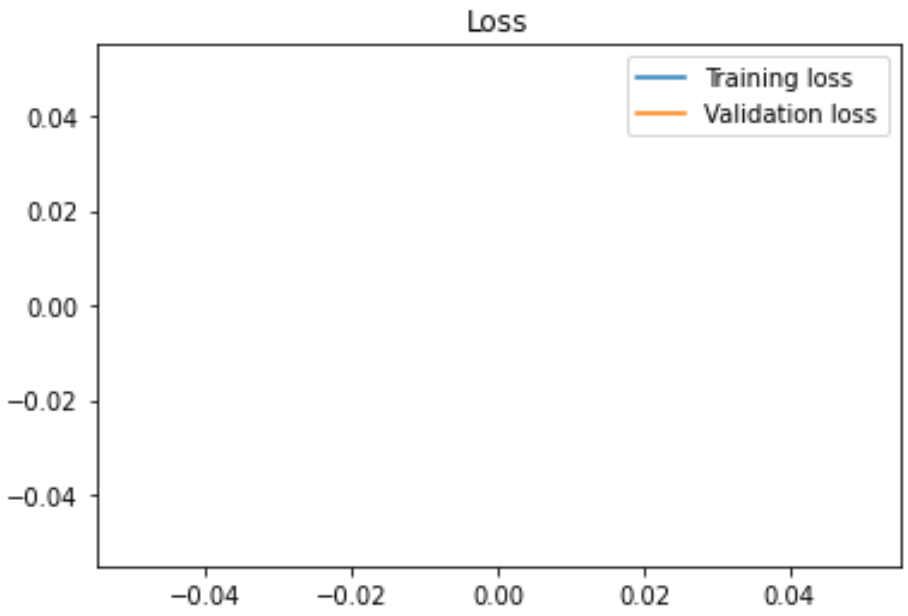
```
Accuracy after fitting: 37.50%
```



CNN - Activation Function Tanh:

➢ GRAPHS OF CNN - Activation Function using Relu: -



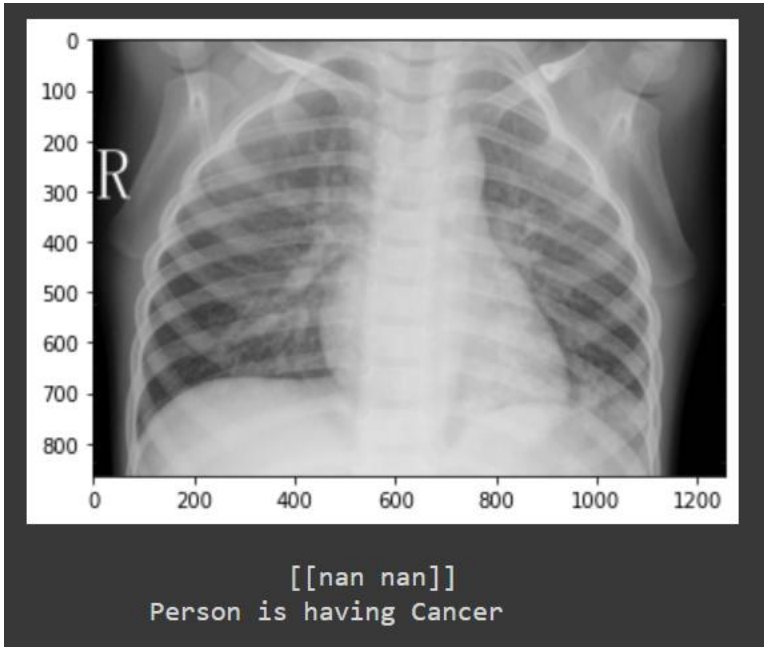


CNN - Activation Function Tanh :

➢ **OUTPUT: -**

```
1 print("Accuracy after fitting: {:.2f}%".format(r.history['val_accuracy'][-1]*100))
```

```
Accuracy after fitting: 37.50%
```



Summary of Review

- Identified Reference Papers related to lung cancer.
- Identified Dataset.
- Identified Convolution Neural Network(CNN) models for experimenting.
- Preparing a review paper after studying various references.

Thank You