A

P R O J E C T R E P O R T

On

LUNG CANCER DETECTION SYSTEM

Submitted by,

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Department of Information Technology

C E R T I F I C A T E

This is to certify that Mr/Miss (Hrushabh Patade ,B, 24 / Sejal Patil , B,30 / Sahil Pisal , B, 39 / Roshani Poojari , B, 40) of Information Technology class TE have executed the Project work in the Subject DS using Python Lab entitled "LUNG CANCER DETECTION SYSTEM" carried out by them under my guidance and supervision within the institute.

Signature of the Guide **Signature of Head of Department**

Examined on:

Examiner 1 **Examiner 2**

Introduction:

Lung cancer is a sort of dangerous cancer and difficult to detect. Lung cancer is a serious and often deadly disease that affects millions of people worldwide. It occurs when abnormal cells grow out of control in the lungs, forming tumors that can spread to other parts of the body. Lung cancer is one of the most common types of cancer, and it is the leading cause of cancer-related deaths globally. It usually causes death for both gender men & women therefore, so it is more necessary for care to immediately & correctly examine nodules. Accordingly, several techniques have been implemented to detect lung cancer in the early stages. Multiple classifier methods are paired with numerous segmentation algorithms to use image recognition to identify lung cancer nodules. The results that obtained from the methods based deep learning techniques achieved higher accuracy than the methods that have been implemented using classical machine learning techniques.

Early detection of lung cancer is crucial for improving survival rates and providing effective treatment. Unfortunately, many cases of lung cancer go undetected until the disease has progressed to an advanced stage, making it more difficult to treat. Various methods are used to detect lung cancer, including imaging tests such as X-rays, CT scans, and MRI scans, as well as blood tests and biopsies. Recently, there has been a growing interest in the use of artificial intelligence and machine learning algorithms to aid in the early detection of lung cancer.

From the windpipe or the main airway, or the lungs Lung cancer can start. It is caused by of the spread of certain cells in the lungs and uncontrolled growth cells. People who suffer from chest diseases or emphysema are more likely to with lung cancer. Small-cell lung carcinoma (SCLC) and non-small-cell lung carcinoma are the two main kinds of lung cancer. SCLC is nearly linked to smoking and is growing faster. Lung cancer of non-small cells is more common and spreads more slowly. It is called mixed small cell/large cell cancer. The algorithms can analyze large amounts of medical data and identify patterns that may be indicative of lung cancer. By using machine learning to assist in the detection of lung cancer, doctors may be able to identify the disease at an earlier stage, potentially saving lives and improving patient outcomes.

Problem Definition:

To design Lung Cancer Detection System to analyze and check if the user is having Lung cancer or not.

Literature Review:

Detection of lung cancer through machine learning algorithms using CT scan images" by K. Kim et al. (2020). This study aimed to evaluate the performance of machine learning algorithms in detecting lung cancer using CT scan images. The authors found that the algorithm had a high accuracy rate in detecting lung cancer, suggesting that this approach could be a useful tool for early detection.

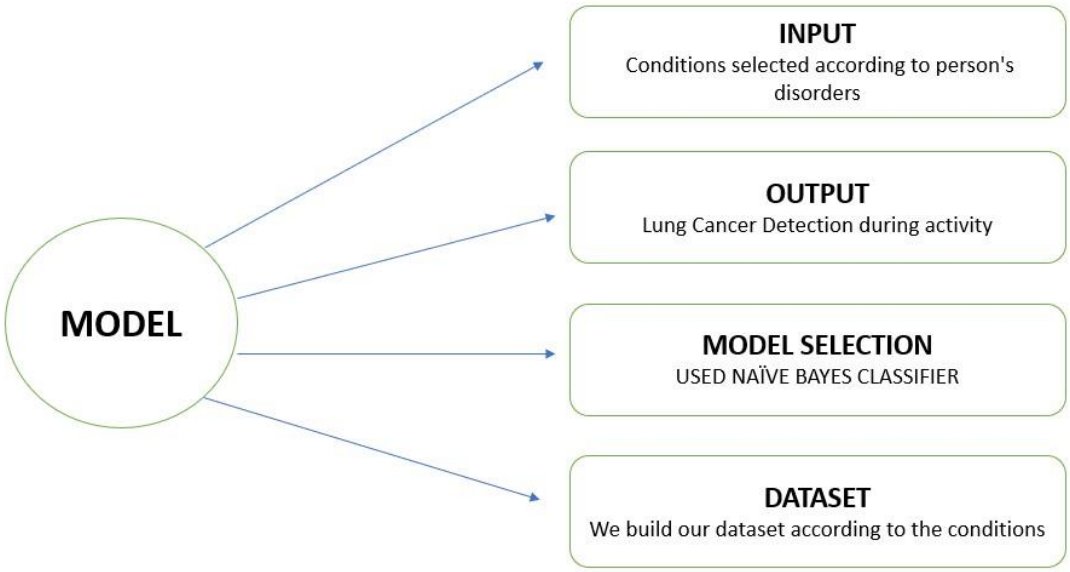
Lung cancer detection and classification using deep learning-based CT image analysis" by J. Yang et al. (2018). This study evaluated the performance of a deep learning-based algorithm in detecting and classifying lung nodules in CT images. The authors found that the algorithm had a high accuracy rate in detecting and classifying lung nodules, suggesting that it could be a useful tool for early detection and diagnosis of lung cancer.

Artificial intelligence in lung cancer detection and management: State of the art and future directions" by A. Mehta et al. (2021). This review article provides an overview of the current state of artificial intelligence and machine learning algorithms in the detection and management of lung cancer. The authors discuss the potential benefits and limitations of these approaches and suggest areas for future research.

The EarlyCDT-Lung Test for Early Detection of Lung Cancer: A Systematic Review and Economic Evaluation" by P. Whiting et al. (2016). This systematic review and economic evaluation aimed to assess the clinical effectiveness and cost-effectiveness of the EarlyCDT-Lung test, which detects certain biomarkers associated with lung cancer. The authors found that the test had a high sensitivity for detecting lung cancer, suggesting that it could be a useful tool for early detection.

Lung cancer screening with low-dose CT: A meta-analysis" by J. Deppen et al. (2013). This metaanalysis aimed to evaluate the effectiveness of low-dose CT screening for lung cancer. The authors found that low-dose CT screening was associated with a significant reduction in lung cancer mortality suggesting that it could be a useful tool for early detection and improving patient outcomes.

Design:


MODEL
INPUT
Conditions selected according to person's disorders
OUTPUT
Lung Cancer Detection during activity
MODEL SELECTION
USED NAÏVE BAYES CLASSIFIER
DATASET
We build our dataset according to the conditions

Result:


HealthCure
Take a Test
What is Lung Cancer?
According to the National Cancer Registry, approximately two lakh (200,000) people are diagnosed with lung cancer every year in India. Lung cancer is a type of cancer that begins in the cells of the lungs, typically in the cells that line the air passages. It is the leading cause of cancer deaths worldwide, as it often goes undetected until it has spread to other parts of the body. The most common type of lung cancer is non-small cell lung cancer, which is further divided into different subtypes based on the specific cell type and stage of progression.


HealthCure
Answer the following by clicking either Yes or No
Smoker : Yes No
Yellow Fingers : Yes No
Anxiety : Yes No
Chronic Disease : Yes No
Allergy Yes No
Alcohol Consuming Yes No
Coughing Yes No
Shortness of Breath Yes No
Swallowing Difficulty Yes No
Chest Pain Yes No
FIND


HealthCure
Answer the following by clicking either Yes or No
Smoker : Yes No
Yellow Fingers : Yes No
Anxiety : Yes No
Chronic Disease : Yes No
Allergy Yes No
Alcohol Consuming Yes No
Coughing Yes No
Shortness of Breath Yes No
Swallowing Difficulty Yes No
Chest Pain Yes No
FIND
Lung Cancer is Detected

Conclusion:

In conclusion, early detection of lung cancer is critical to improving patient outcomes and survival rates. There are several methods of detecting lung cancer, including imaging tests such as CT scans, PET scans, and X-rays, as well as biomarker tests and biopsies. It is important for individuals who are at high risk for lung cancer, such as smokers or those with a family history of lung cancer, to undergo regular screening tests to detect the disease at an early stage when it is most treatable. Additionally, lifestyle changes such as quitting smoking and maintaining a healthy diet and exercise routine can help to reduce the risk of developing lung cancer. Overall, raising awareness about the importance of early detection and prevention strategies can help to reduce the impact of lung cancer on individuals and society as a whole.

Marks & Signature:

R1 (2 Marks)	R2 (2 Marks)	R3 (1 Mark)	Total (5 Marks)	Signature