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ANSWER OF Q4.1

Lung Cancer Detection

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# OVERVIEW

This project deals with identifying and marking cancer nodules in lungs and further classifying them into benign and malignant.

# OBSERVATIONS

|  |  |  |  |
| --- | --- | --- | --- |
| Phenomenon  (question) | How | What | Why |
| Lung nodules | Helps in judging cancer stages | Cancer indicators | Why does cancer occur |
| CT scan | Doctors read them | Imaging technique for diagnosis | To detect cancer nodules |
| Classification | Through various algorithms | Nodules are in active (malignant) or inactive(benign) stage | Not all nodules can be alarmingly dangerous |

The main motive would be the demarcation of the nodular region in the CT scanned images using localization algorithms that gives us some confidence interval about the existence of the cancer nodules and further feeding these images to a classifier will divide them into benign and malignant categories.

Thus in this way, there is use of both localization and classification making the model extensive and effective in answering the diagnosis related questions.

The tasks of identification and classification have been kept as two different systems of the same model in order to have a chance of increased accuracy as while training DNN’s, their parameters are too prone to problems like overfitting,imperfect tuning,less robust to increase in volume data.

Some questions which the model does not answer specifically or are not taken into account-

1. There is no special image filtering or preprocessing done which is specific to CT scanned images.
2. The nodule which is being detected has various parameters to it, there is no specific weight distribution to these characteristics.
3. Although not true for all cases, lung cancer patients have a history of smoking, apart from that there is also a family medical history factor that comes into play. These factors are ignored completely

The third point can add noise in the training data which is another reason why it is ignored.

# PAST RESEARCH

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# MILESTONES

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