**Lung Image Analysis Project - Maintenance Guide**

### **Software Updates:**

* **Model Retraining**: If the dataset is updated or expanded with new images, retraining the YOLOv5 model is required for continued accurate predictions. Ensure to save backup versions of the current model before retraining.
* **Dependency Management**: Regularly check for updates to the project's dependencies in the requirments.txt file.

## System Environment

### **Essential Dependencies:**

* **Python Libraries:**
  + **OpenCV for image processing**
  + **PyQt5 for the GUI**
  + **YOLOv5 for model training and detection**
  + **Matplotlib for image visualization and graph plotting**
  + **NumPy for numerical operations**

**Model and Dataset Setup**:

* **Datasets**: Ensure that the lung X-ray dataset is available in the specified directories (train/NORMAL, train/PNEUMONIA, train/NON\_LUNG). If needed, new images can be added to these folders.
* **YOLOv5 Model**: The pre-trained YOLOv5 model should be located in the model/ directory. If retraining is required, ensure that the dataset is organized correctly and retrain the model.

**Installation:**

Please follow the [how\_to\_install\_project.txt](https://github.com/tareksleman/Estimation-of-smoking-associated-damage-based-on-nuclear-lung-images/blob/main/how_to_install_project.txt) file and user guide file that is located in Documents/User Guide.pdf to install our program, make sure to follow them step by step.

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