Approach Document for Use Case-4

Problem Statement

Given an image of a doctor's prescription as input, extract the list of medicines with their quantities and produce it as output.

Approach

1. Experiment with and understand tools available in OpenCV and other relevant libraries, and use them to identify the "zone of importance" of the image, which contains the medicines and the related information.
2. Create/obtain a database of existing medicines.
3. Train the model using sample pictures of medicine name snippets from prescriptions.
4. Extract the list of medicines using the trained model.
5. Extract the quantities of medicines from the image.

Algorithms involved

The primary or most important algorithm/model involved is a **Deep Learning/Neural Networks-based Object Detection model**, such as **R-CNN**. Once this model is trained on sample handwritten medicine names (snippets of or bounding boxes applied on prescription images), it can act as a **classification** model to identify and classify medicine names present in the images.

Training the model

The object detection model can be trained with images of prescriptions, where the medicine names can be marked with bounding boxes and classified correctly under their respective names. Once a sufficiently large dataset has been collected and annotated, it can be used to train the neural network, post which it would act as an object detection model, extracting the list of medicines.