Homework

Create a program written in Python that will consist of two component where each of them is running in a separate Docker image and they communicate with each other using a virtual network.

1) Tracking component

* Sequentially load images and xml files with labels (from outside of Docker image where the path is a parameter of the Docker image) – the xml files contain bounding boxes of detected objects
* In the first picture, assing random IDs to all bounding boxes
* In the following ones, assign the ID of the closest bounding box from the previous picture (simple tracking)
* Immediately send each with the bounding box coordinates and IDs to the visualizing component, i.e. do not wait until all files are loaded
* Once all files are sent, notify the visualizing component

2) Visualizing component

* Receive all the necessary data from the first tracking component
* Draw the bounding boxes to the corresponding images
  + Use different colors for different IDs of a bounding box
  + Show the ID number on top of the bounding box
  + With the same color, draw also the last 10 locations of the central point of the bounding box (it will show how the person moves)
* Save the whole visualization as a video with a framerate 5fps. The video should be saved into the original folder with the images

The program should include:

* Unit tests
* Readme file describing how to work with it