CSE 666: Homework 2 (Due April 23, 2023)

Goal: Segment fingerprint region from the hand selfie images

Steps:

1. **Data collection (10 points)**: Collect a set of your own hand image (minimum 10 images for each hand) at multiple orientations and distances (see the example below)

2. **Annotation (10 points):** Mark the box around each visible fingerprint region (See the example below)

3. **Detection (35 points)**: Write an algorithm to detect automatically

4. **Validation (10 points):** Evaluate your algorithm performance against the annotation

5. **Testing (20 points):** Test your algorithm against the dataset provided.

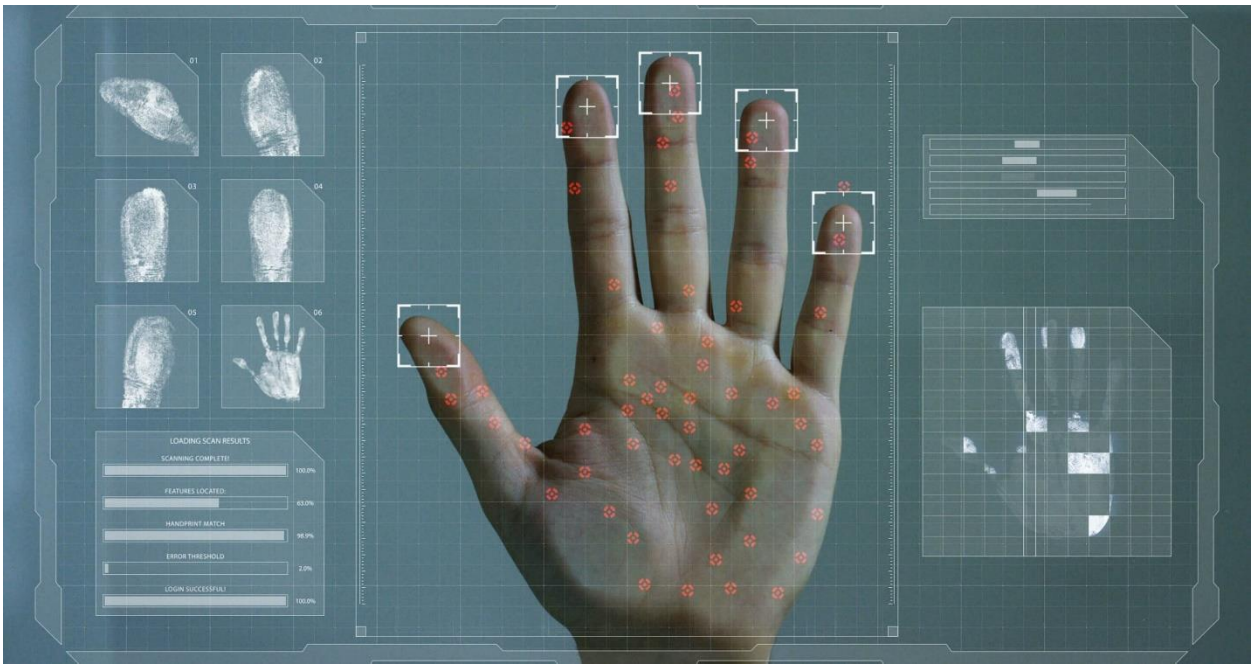
5. **Report (10 Points):** Write a report describing your algorithm and its performance

6. **Future scope (5 points):** How would you improve the detection performance?

Use your favorite programming language, image file format, and libraries you need to get this done.

(Source: https://pixabay.com/photos/palm-hand-finger-exposed-palmistry-1701989/)

(Source: https://www.techspot.com/news/83340-amazon-patent-reveals-hand-scanning-technology-may-want.html)



Submission format:
Your submission must be a zip file uploaded to UBLearns, named in the format <person_number>_<UBITname>_assignment02.zip
The zip file must contain the source code for the implementation and the report in PDF format.

Ensure you use relative paths.

For instance – for a line of code in `/home/varun/submission/src/main.py` that refers to `/home/varun/submission/data/img01.jpg`, supply the path `../data/img01.jpg`.

Export requirements to a requirements.txt (or environment.yml if using conda) and include it in your submission.

Comment code to help reproduce your results where necessary. Your submission will be verified to see if your results match your report and will also be checked for plagiarism using MOSS. Include any instructions, if necessary, to run your code in a README.MD Markdown file.