

ESSAY: Digital Image Processing

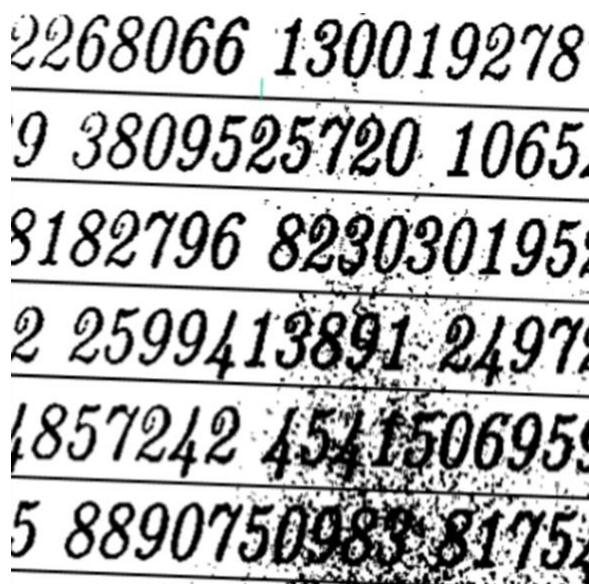
CODE: IT701400

I. Rules

- Each essay is conducted by a group of **one or two students**.
- The essay consists of 2 parts: the Programming part and the Report part.
- Only use OpenCV library and some basic Python libraries in the Programming part.

II. Programming part (7.0 points)

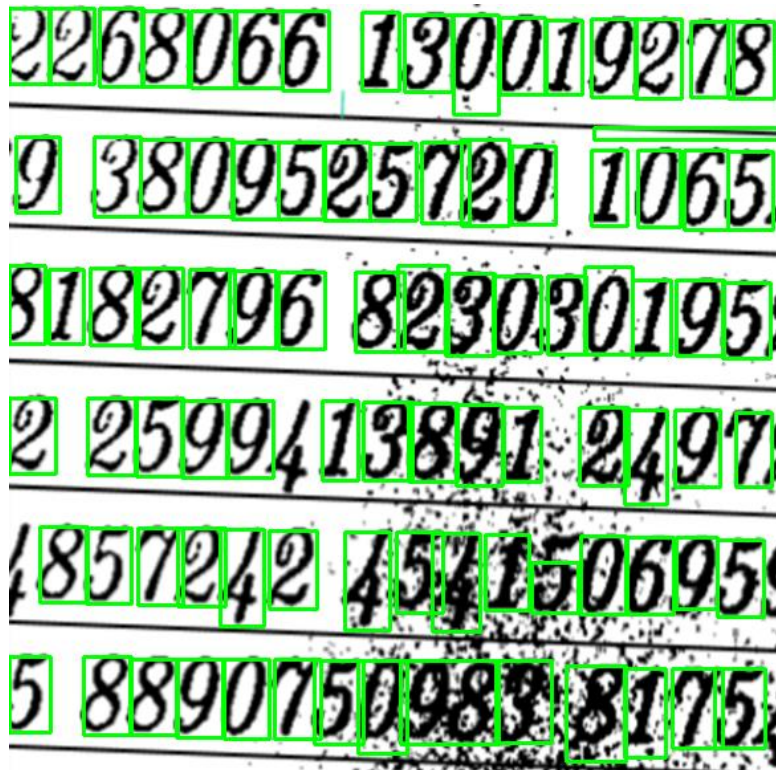
Given an input image as follows:



Filename: **input.png**

Draw rectangles surrounding each digit in the input image automatically, and save the output image into a file.

Here is a sample output:



III. Report part (3.0 points)

1. The report must be submitted in **PDF format**, and the content must be written based on the report/essay format of the Faculty of Information Technology. **In case students do not follow the Faculty's format, they will receive 0 points for the Report part.**
2. The report must include the following contents:

- a. Chapter 1: Methodology of Solving Tasks (**2.0 points**)

Write a detailed description of the solving method in the “Programming part” (required output images for each step in the solving method).

- b. Chapter 2: Task results (**1.0 points**)

Create images of all source codes and corresponding outputs in the “Programming part”, and insert them into this chapter. The images must be clear, and properly laid out. The images captions and descriptions are also required.

IV. Submission guideline

- Filenames of the source code and the report files must be the **Student IDs**, for ex.,

- A group of only one student with student ID 521H1495 will submit a Python source file named **521H1495.py** and a report file named **521H1495.pdf**
- A group of two students with student IDs 521H1234 and 522H4321 will submit a Python source file named **521H1234_522H4321.py** and a report file named **521H1234_522H4321.pdf**
- Students submit a **Python source file and a report file** to the "**MidTerm_Essay**" assignment on Elearning website of the practical class.
- Students must ensure that the Python source files are not corrupted during execution. The source code with errors will not be scored.
- Python source files must be saved in the correct format (**file extension is .py**). The source files in the wrong format will not be scored.

V. Regulations

- The result of this essay will be the Midterm score.
- **Student who copy their friends's essay will be scored 0.**
- **If a student's work shows signs of copying each other, the student will attend an interview with the lecturer.**

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