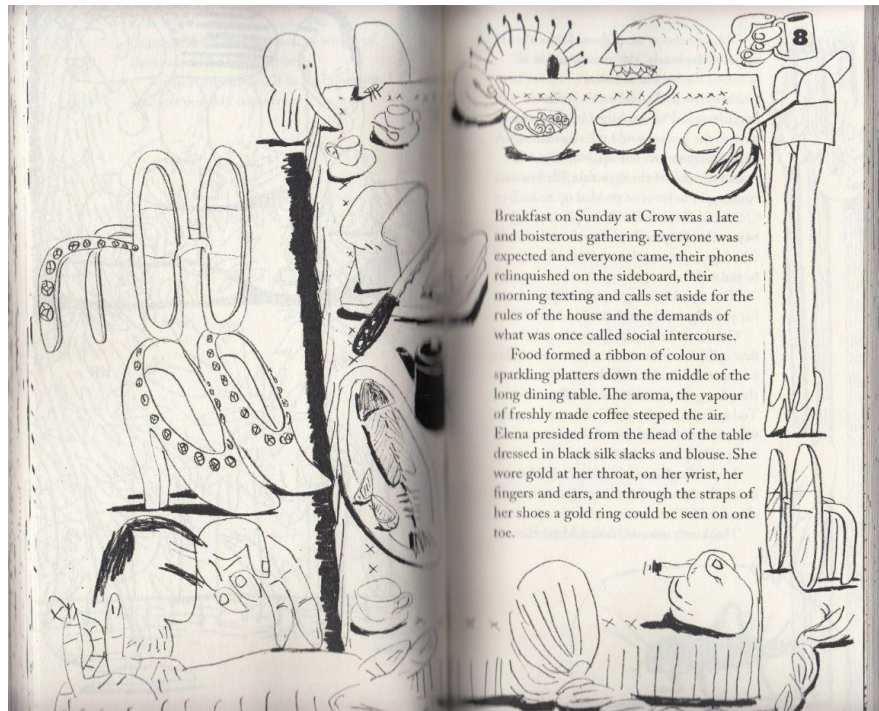# ASSIGNMENT 3

Q1)Nettoyeur de Gouttières

The inner margin of books is also referred to as a gutter. Scanning or photocopying the books, magazines or notebooks, casts shadows in the gutter as shown in the image.

Clean the gutters by removing shadows for all 3 provided input images. Images will be provided on the discord channel. Do not take a snippet of this image.
- Note: We will use any one of them for evaluation.

Create a google colab file which will take the input as the integers '1' or '2' or '3' and output the cleaned image of gutters1.jpg or gtters2.jpg, or gutters3.jpg as per the respective inputs.
- Note: Try to follow good coding habits like adding comments, creating a new code section in the ipynb file as and when required (If you are not doing this then you are missing one of the best advantages of python notebooks over python files), etc. These habits are going to help you a lot whenever you code, whether you land up in corporate or in research or involve in open source.

Well if you are unaware, one of the basic reasons why people use notebooks is because you do not need to run the entire code every time. If you make a change in the code which has only local effects then running only that cell or all the proceeding cells will show you the results. You need not run the code above it.

Furthermore you also have the option to activate GPU in colab, which reduces training and testing speed drastically. We can discuss these stuffs some day, if we get time.

Nevertheless you can find these contents on the internet, if you are interested to explore.

Q2) Friendly Neighbourhood Engineer

In remote Indian villages, cattle or livestock missing complaints went rampant. Villagers are vigilant during the day, but as you know most of the mishaps occur at night
when the environment is poorly lit due to intermittent power outages. And definitely unlike you engineers they lack the capability of staying up all night and sleeping the entire day.
So after receiving numerous complaints from villagers, the officials installed few battery powered CCTV cameras spread across places. Even then one night cattle went missing. But the officials say there is no sign of theft. Neither any human nor an animal can be seen involved in it. Only when a ray of light attempts to pierce this darkness, the real investigation unfolds. So, the dejected illiterate villagers with ill-lit lanterns and 4 dark CCTV images are looking to you for the ray of hope.
You must process (filter, enhance) these night images in order to discover possible traces of theft; to 'equalize' the arguments of both parties(villagers and officials). We will use all images cctvX.jpg ($X \in \{1, 2, 3, 4\}$) one after another for evaluation as evidence might not be evident in some images (one sample input is shown in Fig. 3).
Your method should produce corresponding enhanced-cctvX.jpg file. Create a google colab file which will take the input as the integers '1' or '2' or '3' or '4' and output the respective enhanced images as done in the previous question. All the other guidelines are same as the first question.

This is a sample image. All images can be found in the discord.
Do not take a snippet of this image

-- ENJOY --