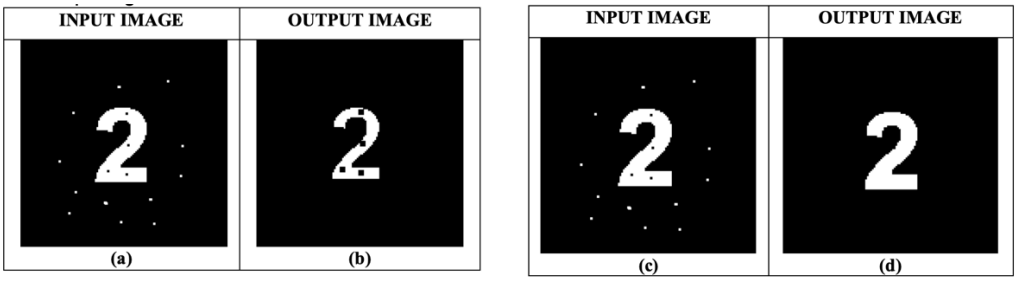
Assignment 3: Morphological Filters & Spatial Filtering

A. What to DO:

1. Identify the morphological operators/filters used for the given input and output images and implement the effects using morphological operators/filters on the morphology.png image. You can use MATLAB to built-in morphological functions.



2. Apply both morphological and median filters on the fingerprint image (fingerprint_BW.png). Compare the result and comment under what condition, one filter might perform better than the other. You can use MATLAB to built-in morphological functions.
3. For the cell.jpg image, write a code to count the total number of cells, calculate the size of each cell in pixels, and show the boundary of the biggest cell in an output image. In your code, you might use any techniques covered in this class. Hint: Thresholding, morphological filters, connected components, etc.

B. What to turn in:

- A zip file with all the necessary SOURCE code
- A written report (in pdf format) using the template including the following contents:

  - **Cover page** with your name, class title, class number, date, etc.
  - "**Abstract**" (no more than 300 words) summarizing what this project is about (objective), what you did, and what you found out in this project.
  - "**Result**" listing both the original images and the output images of the sampling and quantization effects. Make sure that there is captions for each image in the figure and parameters used to generate the result are elaborated in the caption.
  - "**Discussion**" section summarizing lessons learned, your experience working on the project, potential future work if given time, etc. Note that this should be a short paragraph, no more than 300 words.
  - **Source code** printout.

• Upload the zip file and project report to D2L.

C. Due Date is on D2L