YOU SHOULD KNOW: HOMEWORK 1

CS 3570 INTRODUCTION TO MULTIMEDIA

RULES

Plagiarism

- Copy from classmates or from who ever took this course
- If you refer any code from public web, Google / Stackoverflow, you must cite and explain how it works in your report.

Not complete homework package

- Readme [-10%], should mention how to execute the code, or you'll get zero.
- Image results [-5%]

Late hand-in will get 20% off every day

SAMPLE RESULTS (PROB. 1)

Results (n = 2, 4, 8) ↑

Original Image →

HINTS

$$PSNR = 10 \cdot \log_{10}\left(\frac{MAX_I^2}{MSE}\right)$$
$$= 20 \cdot \log_{10}\left(\frac{MAX_I}{\sqrt{MSE}}\right)$$
$$= 20 \cdot \log_{10}(MAX_I) - 10 \cdot \log_{10}(MSE)$$
$$MSE = \frac{1}{mn} \sum_{i=0}^{m-1} \sum_{j=0}^{n-1} [I(i,j) - K(i,j)]^2$$

I: original image; K: compressed image

HINTS

- Use `double` for calculation to preserve the numerical precision.
- While computing the PSNR between original and processed images, you had better use `double` instead of `uint8`.
- You might use the MATLAB built-in functions not allowed in this homework to evaluate your implementations.

NOTES

- 任何會直接得到我們作業要求結果的內建 functions 一律都不能使用，除非特別補充。
- Your report should contain at least
  - how you implement the methods
  - discussion about the output results