CMPT 412 Assignment 1 Fall 2017
Due 11:59pm Tuesday, September 19, 2017

- Write the following functions. Each returns a new image.
  - To make these exercises easier, you can assume all images have an even number of rows and columns.
  - Use only Matlab's implicit looping operations. You are **not** allowed any 'for' or 'while' loops.
  - Each function should return a colour image (NxMx3 array) as its value.
  - Write your own functions, don't use Matlab functions like imresize that would make the exercises trivial.
- subsample(image, factor)
  - Reduces the size of an image by taking only pixels every 'factor' pixels apart
- shrink(image)
  - Makes the image half as large in both height and width. Each pixel should be the average of 4 pixels. Assume input image has even number of rows/columns.
- zoom(image)
  - Makes the image twice as large in both height and width. Each pixel in the input image is replicated to become 4 pixels in the output image.

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- myrotate(image)
  - return an image rotated by 90 degrees clockwise
- reflect(image)
  - return an image that is reflected about the vertical axis
- dim(image,fraction)
  - return an image that is scaled to be darker by ‘fraction’
- contrast_compress(image)
  - take the square root of each colour channel and then rescale so that the image uses the full [0,1] intensity range.

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- Submit your assignment via Canvas
- Combine all your m-file code and sample test results copied from the command window into a single WORD or PDF file.
- Make sure your code includes comments, including before the 'function' line for Matlab help
- Also show tests with very small 'images' such as the following creates
  - a=zeros(6,6,3); a(:,:,1)=magic(6); a(:,:,2)=magic(6)'; a(:,:,3)=ones(6)/2; a=a/max(a(:));
  - (retype it rather than copy and paste because some characters may not transfer properly)

- This is the easiest assignment of the semester. It's just to get you started with Matlab. Grading on this assignment will be pass/fail.