1. Write a MATLAB program to complete the following tasks:
   - Read an image into the workspace (e.g., using MATLAB function imread) and display the image (e.g., using MATLAB function imshow). The image file name should be image.png and there is no need to submit the image. (10 points)
   - Display each channel of this image in a separate figure (window). (10 points)
   - Convert the color image into HSV color space (e.g., using rgb2hsv) and display each channel in a separate figure. Note the channels are the HSV channels. (10 points)
   - Enlarge the image two times (e.g., using the function imresize) and crop the enlarged image to its original size (e.g., using the function imcrop) (10 points)
   - Convert the color image into grayscale (e.g., using function rgb2gray) (10 points)
   - Generate the histogram of the grayscale image and display it on screen (10 points)
   - Write a function to achieve histogram matching (hint: use MATLAB built-in function histeq as the starting point) (30 points)
     - The function takes two input images (either color or grayscale images) and uses the histogram of one image as the reference to modify the histogram of the other image so that the histograms of both after histogram matching are similar (statistically).
     - Hint: check the dimensionality of the input image and include a call to the color conversion function if the image has three channels at the start of the histogram matching function so that the function deals with color and grayscale images.
   - Save the resulting image after the histogram matching into an image file (e.g., using the function imwrite) (10 points)

2. Put all your codes in ONE program and submit only the source code.
3. Name your program as follows: "Assignment1_" followed by your first initial and last name then the extension name, e.g., for student John Franklin, name the file *Assignment1_JFranklin.m*. Failure to follow the naming convention will result in a penalty of 5 points. Failure to include meaningful comments will deduct 5 points.
4. Within the program, use comment lines to describe how to execute the program to demonstrate the successful completion of the above actions.