MATLAB Programming NCTU Spring 2017 LAB#5 2017/3/31

For this lab, you will learn to write a MATLAB function. You will also touch a little bit about reading and displaying images. This will be a simple function with several forms, so you get to do input/output argument checking and implement the tasks accordingly.

Name your function **IMX**. It should be able to handle the following input/output combinations:

1. `IMX(A)` % Show **A** as an image. If the size of the third dimension is not 1 (gray image) % or 3 (color image), print out an error message.
2. `IMX(A,k)` % **k** is a scalar or a vector. % **S**how each color plane of **A** indexed by **k** (i.e., `A(:,:,k)`) as an image. % (Show each image in a separate figure window.) % If **k** is invalid, print out an error message.
3. `B=IMX(A,k)` % **k** is a scalar or a vector. % **B** contains the color planes of **A** indexed by **k**. No image displayed. % If **k** is invalid, print out an error message.
4. `[r,c]=IMX(A)` % **r** and **c** are the numbers of rows and columns of A. No image displayed.
5. For each of the forms above, if the input **A** is a string instead of a numeric array (you can check with the function **ischar**), treat it as a path to load an image file. You can use the function **imread** to read an image file and store it to an array.

You need to do input argument checking. If the required conditions are not met, send out an error message using function **error**; the function will terminate at your error message. Also send out error messages if the numbers of input or output arguments are invalid.

Use function **imshow** to display an image.