I am trying to write an m-file for an intensity transformation (mapping) function but I am getting very lost.  
  
The M-function is for performing general intensity transformations of gray-scale images. The specifications for the function are as follows:  
  
function z = intxform (s, map)  
%INTXFORM Intensity transformation.  
% Z = INTXFORM(S, MAP) maps the intensities of input  
% image S using mapping function, MAP, whose values are assumed to  
% be in the range [0 1]. MAP specifies an intensity transformation  
% function as described in Section 3.2 of Digital Image Processing Second  
% edition  
% For example, to create a map  
% function that squares the input intensities of an input image of  
% class uint8 and then use function INTXFORM to perform the mapping  
% i write:  
%  
% t = linspace(0, 1, 256);  
% map = t.^2;  
% z = intxform(s, map);  
%  
% The output image is of the same class as the input.  
  
The m-file should also display the original and processed images and the original and processed histograms using subplot function.  
  
I know that this is a function file and it should allow the user to input the image(s) and the map (which is the intensity transformation. I  want to provide a range of built in functions which the user can access (e.g. positive to negative). An important part of the program will be the help text that is written for the user – i can use the text above as part of it, but should be expanded to make it specific to the program. This helps the user to know how to implement the program and what inputs to use.  
  
I need to normalize the image pixel values before applying the intensity transformation and then convert back to pixel values before displaying. I read that the interp1 function is useful in this. The intensity transformation map is defined by the user as above (‘map’) and the code should then convert the normalized pixel values to the map values, implementing s = T(r)  
  
I know that MATLAB arithmetic operations cannot be performed on uint datatypes and imshow does not work with double datatypes but I also need to check that the programs are executable. It should be saved as function m-files and should contain a function definition line, an H1 line, help text, and comment text at each line explaining what the program is doing.  
  
I have had a good play with MATLAB but I just can't get around this intensity transformation (mapping) function. If you could help compile the m-file with the above guidelines I can then work on that for future reference.  
  
With best regards