#1
Extracting pixel values from grayscale images

i. Write a function ***v=pixVal4e(f,r,c),*** where ***f*** is a grayscale image and ***r*** and ***c*** are scalars corresponding respectively to a row and column number in ***f***. Output ***v*** is the pixel value ***f(r,c***).

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ii. Test your function by reading the image ***girl.jpg*** and obtaining the pixel values at the origin and at the middle of the image. Display the values on the screen (the image need not be displayed);

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iii. Write a function ***[r,c,v]=cursorValues4e(f)*** that displays image ***f***, displays a mouse-controlled cursor over it and, when the mouse left button is clicked, outputs the row/column coordinates ***(r,c)*** and the value ***v*** of the pixel at those coordinates.

- The function should close the display of ***f***. The file of image ***f*** and any previously opened displays should not be closed by this function.

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MAIN SCRIPT

iv. Write a main script that call and execute the two functions and additionally:

- Display the size (M,N) of the input image;
- Display the mean gray level of the input image;
- Display the bit depth;
- Save the input image in .tif format.

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HINTs:

- Extracting pixel values from grayscale images → Use the function from (a) to obtain the pixel value and, if you are using MATLAB, you can use the function ***ginput*** to display the cursor and get its coordinates.

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HINTs:

- ***floor*** → Round towards minus infinity. floor(X) rounds the elements of X to the nearest integers towards minus infinity.

- ***disp(X)*** → displays array X without printing the array name or additional description information such as the size and class name.

- [c, r] = ***ginput(N)*** gets N points from the current axes and returns the c- and r-coordinates in length N vectors c and r. The cursor can be positioned using a mouse. Data points are entered by pressing a mouse button or any key on the keyboard except carriage return, which terminates the input before N points are entered; Note that ***c*** and ***r*** are output as floating point numbers

- *round* → rounds towards nearest decimal or integer. ***round(X)*** rounds each element of X to the nearest integer.

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HINTs:

- ***close(H)*** → closes the window with handle H. ***close***, by itself, closes the current figure window.

- ***gcf*** ➔ Get handle to current figure. ***H = gcf*** returns the handle of the current figure.

- The current figure is the window into which graphics commands like ***PLOT, IMSHOW, TITLE, SURF, etc.*** will draw.

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What to deliver?

- The m (commented) file;
- The image file in .tif format;
- report according to model (including the print the values / images requested in the project);