407 Comp Lab 2

Create some types of images:

1-Generate a gray scale image

```
clear
clc
a=randi([0 255],200,200);
imshow(a)
```

2-Generate a black and white image

```
clear
clc
a=randi([0 1],200,200);
imshow(a)
```

3- Generate a colored image

```
clear
clc
x=randi([0 255],500,500,3);
imshow(x);
```

4-Make a code to resize the image (shrink) into half (similar to the MATLAB function imresize(I,1/2))

السؤال دة ينفع الاجابة دى او الى تحت
بس الى تحت افضل عشان افهم اجابة واحدة

```
clear
clc
a=imread('cameraman.tif');
[r,c]=size(a);
b=zeros(r/2,c/2);
for i=1:r
    for j=1:c
      b(i,j)=a(i,j);
      j=j+1;
    end
    i=i+1;
    j=1;
end
b=uint8(b);
c=imresize(a,0.5);
subplot(2,2,1),imshow(a);
subplot(2,2,2),imshow(b);
subplot(2,2,3),imshow(c);
```

5-Make similar code to resize the image (zoom) into 1.5 (similar to the MATLAB function imresize(I,3/2))

```
clear
clc
inputImg = imread('Pout.tif');
factor = input('Enter the factor of resizing (Shrinking or Zooming):
');
[r, c] = size(inputImg);
r_new = floor(r*factor);
c_new = floor(c*factor);
scaledImg = zeros(r_new, c_new);
for i=1:r_new
    for j=1:c_new
        px = floor(i/factor);
        py = floor(j/factor);
        if px == 0
            px = 1;
        end
        if py == 0
            py = 1;
        end
        scaledImg(i,j) = inputImg(px,py);
    end
end
subplot(1,2,1);imshow(inputImg)
subplot(1,2,2);imshow(scaledImg)
```

6- try the following: Image Conversion

- gray2ind - intensity image to index image
- im2bw - image to binary
- im2double - image to double precision
- im2uint8 - image to 8-bit unsigned integers
- ind2gray - indexed image to intensity image
- mat2gray - matrix to intensity image
- rgb2gray - RGB image to grayscale
- rgb2ind - RGB image to indexed image