%%REPORT FOR QUESTION 2

%here the images are uploaded

%on which the operations are going to be performed

a='../data/barbara.png';

b='../data/TEM.png';

c='../data/canyon.png';

aimg=imread(a,'png');

bimg=imread(b,'png');

cimg=imread(c,'png');

%tic here starts the clock because the code takes a lot of time

tic;

%the given code does linear contrast streching on the the 3 images

figure('Name', 'Input-barbara-myLinearContrastStretching'),imshow(aimg);

colorbar;

aout1=myLinearContrastStretching(aimg);

figure('Name', 'Output-barbara-myLinearContrastStretching'),imshow(aout1);

colorbar;

save ('../images/barbara\_contrast.mat');

figure('Name', 'Input-TEM-myLinearContrastStretching'),imshow(bimg);

colorbar;

bout1=myLinearContrastStretching(bimg);

figure('Name', 'Output-TEM-myLinearContrastStretching'),imshow(bout1);

colorbar;

save ('../images/TEM\_contrast.mat');

figure('Name', 'Input-canyon-myLinearContrastStretching'),imshow(cimg);

colorbar;

cout1=myLinearContrastStretching(cimg);

figure('Name', 'Output-canyon-myLinearContrastStretching'),imshow(cout1);

colorbar;

save ('../images/canyon\_contrast.mat');

%the given code does HE on the the 3 images

figure('Name', 'Input-barbara-myHE'),imshow(aimg);

colorbar;

aout2=myHE(aimg);

figure('Name', 'Output-barbara-myHE'),imshow(aout2);

colorbar;

save ('../images/barbara\_HE.mat');

figure('Name', 'Input-TEM-myHE'),imshow(bimg);

colorbar;

bout2=myHE(bimg);

figure('Name', 'Output-TEM-myHE'),imshow(bout2);

colorbar;

save ('../images/TEM\_HE.mat');

figure('Name', 'Input-canyon-myHE'),imshow(cimg);

colorbar;

cout2=myHE(cimg);

figure('Name', 'Output-canyon-myHE'),imshow(cout2);

colorbar;

save ('../images/canyon\_HE.mat');

%the given code does AHE on the the 3 images,

%AHE is performed thrice on 1st image for showing variation of NxN window

figure('Name', 'Input-barbara-myAHE'),imshow(aimg);

colorbar;

aout3=myAHE(aimg,60);

figure('Name', 'Output-barbara-myAHE-finetune'),imshow(aout3);

colorbar;

save ('../images/barbara\_AHE-finetune.mat');

figure('Name', 'Input-barbara-myAHE'),imshow(aimg);

colorbar;

aout3=myAHE(aimg,150);

figure('Name', 'Output-barbara-myAHE-bigwindow'),imshow(aout3);

colorbar;

save ('../images/barbara\_AHE.mat');

figure('Name', 'Input-barbara-myAHE-bigwindow'),imshow(aimg);

colorbar;

aout3=myAHE(aimg,30);

figure('Name', 'Output-barbara-myAHE-smallwindow'),imshow(aout3);

colorbar;

save ('../images/barbara\_AHE-smallwindow.mat');

figure('Name', 'Input-TEM-myAHE'),imshow(bimg);

colorbar;

bout3=myAHE(bimg,60);

figure('Name', 'Output-TEM-myAHE'),imshow(bout3);

colorbar;

save ('../images/TEM\_AHE.mat');

figure('Name', 'Input-canyon-myAHE'),imshow(cimg);

colorbar;

cout3=myAHE(cimg,60);

figure('Name', 'Output-canyon-myAHE'),imshow(cout3);

colorbar;

save ('../images/canyon\_AHE.mat');

%the given code does CLAHE on the the 3 images

figure('Name', 'Input-barbara-myCLAHE'),imshow(aimg);

colorbar;

aout4=myCLAHE(aimg,200,60);

figure('Name', 'Output-barbara-myCLAHE'),imshow(aout4);

colorbar;

save ('../images/barbara\_CLAHE.mat');

figure('Name', 'Input-TEM-myCLAHE'),imshow(bimg);

colorbar;

bout4=myCLAHE(bimg,200,60);

figure('Name', 'Output-TEM-myCLAHE'),imshow(bout4);

colorbar;

save ('../images/TEM\_CLAHE.mat');

figure('Name', 'Input-canyon-myCLAHE'),imshow(cimg);

colorbar;

cout4=myCLAHE(cimg,200,60);

figure('Name', 'Output-canyon-myCLAHE'),imshow(cout4);

colorbar;

save ('../images/canyon\_CLAHE.mat');

toc;

%toc to stop timer