HW3:

This will be a very short and quick study however I believe it will be helpful for you to understand the details of creating a 2D graph. And the knowledge used here is also applicable to all other languages as well.

I ask you to create the same 2D (meaning 3D you know that) Gaussian without using the command “mesgrid”. You can use the same constants and almost same equation which we used as an example in the class. These are :

rx=1:1:30; % lets create our x vector

ry=1:1:30; % lets create our y vector

xc=15;yc=15;A=30;w=5;

y=(A/w\*sqrt(pi/2))\*(exp(-2\*((X-xc).^2+(Y-yc).^2)./w^2));

%hw3

%090200124 Seyma Kerkuklu

clc;

Xnew=zeros(50,50);

Ynew=zeros(50,50);

%To create 2d plane we need to mesh our vectors

for i=1:50

Xnew(:,i)=i; %Xnew is a matrix 30x30 which is all rows are the vector r=1:30

for j=1:50

Ynew(i,j)=i; %Ynew is a matrix 30x30 which is all colums are the vector r=1:30

end

end

xc=25;yc=25;A=20;w=10; % the constants given for our 3D Gaussian Function

n=[A,w,xc,yc]; % n is the constant matrix we declare

x=Xnew(:);

y=Ynew(:);

M=[x,y]; % Indexing all mesh points

G=gauss2D(n,M); % sending elements of M to the function

% y=(A/w\*sqrt(pi/2))\*(exp(-2\*((X-xc).^2+(Y-yc).^2)./w^2));

%which will calculate z values

g=reshape(G,50,50);

figure(13);surf(Xnew,Ynew,g);hold on; %plotting the figure in 3d

