CSE 7

Introduction to Programming in MATLAB

Chapter 11
Advanced Plotting Techniques
Part 1
Subplot of plot, bar, area, stem
Bar, Stacked Bar for Matrices

Bar

Stacked Bar
>> quizzes = [10 8 5 10 10 6 9 7 8 10 1 8];
>> hist(quizzes)
>> xlabel('Grade')
>> ylabel('#')
>> title('Quiz Grades')
• A string cell array as a second argument prints strings (vs. percentages)
>> [X,Y] = meshgrid( 1 : 3 , 10 : 14 )
X =
 1  2  3
 1  2  3
 1  2  3
 1  2  3
 1  2  3
Y =
10 10 10
11 11 11
12 12 12
13 13 13
14 14 14

>> [X,Y] = meshgrid ( -2 : .2 : 2 , -2 : .2 : 2 );
Z = X .* exp( -X.^2 - Y.^2);
surf(X,Y,Z)

- Rectangular grid in 2-D and 3-D space
- Creates a 3-D surface plot of a function
Meshgrid

1. Define a meshgrid which has along x-axis, values from -3 to 3 with increment of 0.4. Along y-axis, the numbers should start at -4 and end at 4, with increments of 0.4.
2. Once your meshgrid is defined, make a surface plot of function \( z = x^2 - y^2 \).
3. Label the axes as 'x-axis', 'y-axis' & 'z-axis'.
4. Title: Surface Plot
5. Your final surface plot will look similar to the image below.

Use meshgrid to create a 3-D surface plot of a function:

```matlab
[X,Y] = meshgrid(-2:0.2:2, -2:0.2:2);
Z = X.^2 + exp(-X.^2 - Y.^2);
surf(X,Y,Z)
```