**Q2:**

According to the codes and commands we run in the lecture, we fit a simple line to a simple data set in 2 different ways. As you recall, 1st is the way where we used proper linear fit code named: polyfit .

In the 2nd way we used mldivide to determine the fitting parameters as nfit2=xnew\y ; where xnew is the new matrix composed od “1”s for the constant (c parameter : nfit(1)) and the x values for the nfit(2) : slope. This is ,of-course, meaningful if we know \ is the mldivide command , in fact.

Now instead of using these 2 ways, I am asking you to define a 3rd way. This time, you are supposed to use lu command where MATLAB calculates the U: Upper and L: Lower plus the P : pivoting matrices for the known coefficient matrix. You may remember we did a simple example for this in the class.

So again use these data : and fit it with a simple line.

x=0:1:7;

y=[0,20,60,68,77,110,100,130];

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clc;

format short g;

format compact;

clc;

clear all;

x = 0:1:7;

y = [0, 20, 60, 68, 77, 110, 100, 130];

%Ax=b

A=[ones(size(x', 1),1), x'];

b=[y'];

%LU matrix factorization, A = P'\*L\*U.

% L is unit lower triangular and U is upper triangular.

[L, U, P] = lu(A);

nfit= U\(L \P \* b);

%nfit(1) is the slope

%nfit(2) is the constant

scatter(x, y, 'bo');

hold on;

y\_fit = nfit(2) \* x+ nfit(1);

plot(x, y\_fit, '-m');

