```
function [x_mcuv, std_x, mean_x] = zscore1(m)
    s = size(m);
    rows = s(1);
    columns = s(2);

    mean_vec = ones(1, columns);
    std_vec = ones(1, columns);

    for i = 1:columns
        v = m(:,i);
        mean_val = mean(v);
        std_val = std(v);
        c = (v - mean_val) / std_val;
        m(:,i) = c;
        mean_vec(i) = mean_val;
        std_vec(i) = std_val;
    end

    x_mcuv = m;
    std_x = std_vec;
    mean_x = mean_vec;
end
```

```
filename = input('Enter a filename: ','s');
load(filename);
% have to figure out what the name of the matrix we just loaded is
vs = whos('-file',filename);
% store the loaded variable in a name that I know
m = eval(vs.name);
[x_mcuv, std_x, mean_x] = zscore1(m)
save('parameters','x_mcuv','std_x','mean_x');
```

```
normalize
Enter a filename: data.mat

x_mcuv =

    0.5234    0.4879   -0.2792    0.8564
    0.7994   -1.3659   -0.5178   -0.8772
   -1.5611    1.0661    1.0839   -0.0007
    0.8224    1.3198    1.2077    0.6740
   -0.0293    0.5566   -1.3299    1.3443
   -1.6503    0.7928   -0.0664    1.5832
   -1.1018    0.7492   -0.2507    0.1434
   -0.2884   -0.3000    0.5866   -1.2842
    0.9562    0.4871    0.8497   -1.2469
    0.9786   -0.9609    1.0387   -0.8688
   -1.4682    0.6383   -0.9580    1.1689
    0.9958   -1.3775    0.7259   -0.8801
    0.9551   -0.6447    0.6233    1.0766
   -0.4748   -1.3346   -1.4311   -0.9177
    0.4796   -1.1823   -1.6130    1.4783
   -1.5159    0.9893   -0.0305   -0.5457
   -0.6676    0.6047    1.8941   -1.0816
    0.8296   -0.5246   -0.6895   -0.8912
    0.4552    1.3683    0.3320    0.3839
    0.9622   -1.3697   -1.1758   -0.1149


std_x =

    5.6088  351.1897    0.2397    0.0086


mean_x =

   10.9146  517.1898    0.5057    0.0152

diary off
```