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close all
clc

% Copy this file into a Matlab script window, add your code and answers to
the
% questions as Matlab comments, hit "Publish", and upload the resulting PDF
file
% to this page for the tune-up assignment.  Please do not submit a link to a
file
% but instead upload the file itself.   Late penalty: 2 points per minute
late.

% This tuneup is to help you get started on the mini project number #2

% (a) Load the image.  Download the image from
% https://users.ece.utexas.edu/~bevans/courses/signals/homework/
echar512.matLinks to an external site.
% and place it in the current directory or a directory on the Matlab path.

load echar512.mat

% The load command will define a Matlab matrix echart.

% (b) Display the image.

figure;
imshow(echart);

% Describe the image.
% -> They are rows of letters, whose reducing in font size as we moving down
the
% collums, the width of the letter are getting smaller.

% (c) Interrogate the values in the image by clicking on the
%      Matlab variable in the workspace.

%      What values are in the image?
% -> All the values are either 0 or 255 since there are only white and
% black pixels in the image.

%      To what grayscale intensities do they correspond?
% -> They are scale from 0 to 255, with 0 correspond to black,
% 127 corresponding to gray 255 correspond to white.

% (d) Apply a two-point averaging filter along the rows.
%      Display the resulting image.
%      Describe the result image compared to the original.

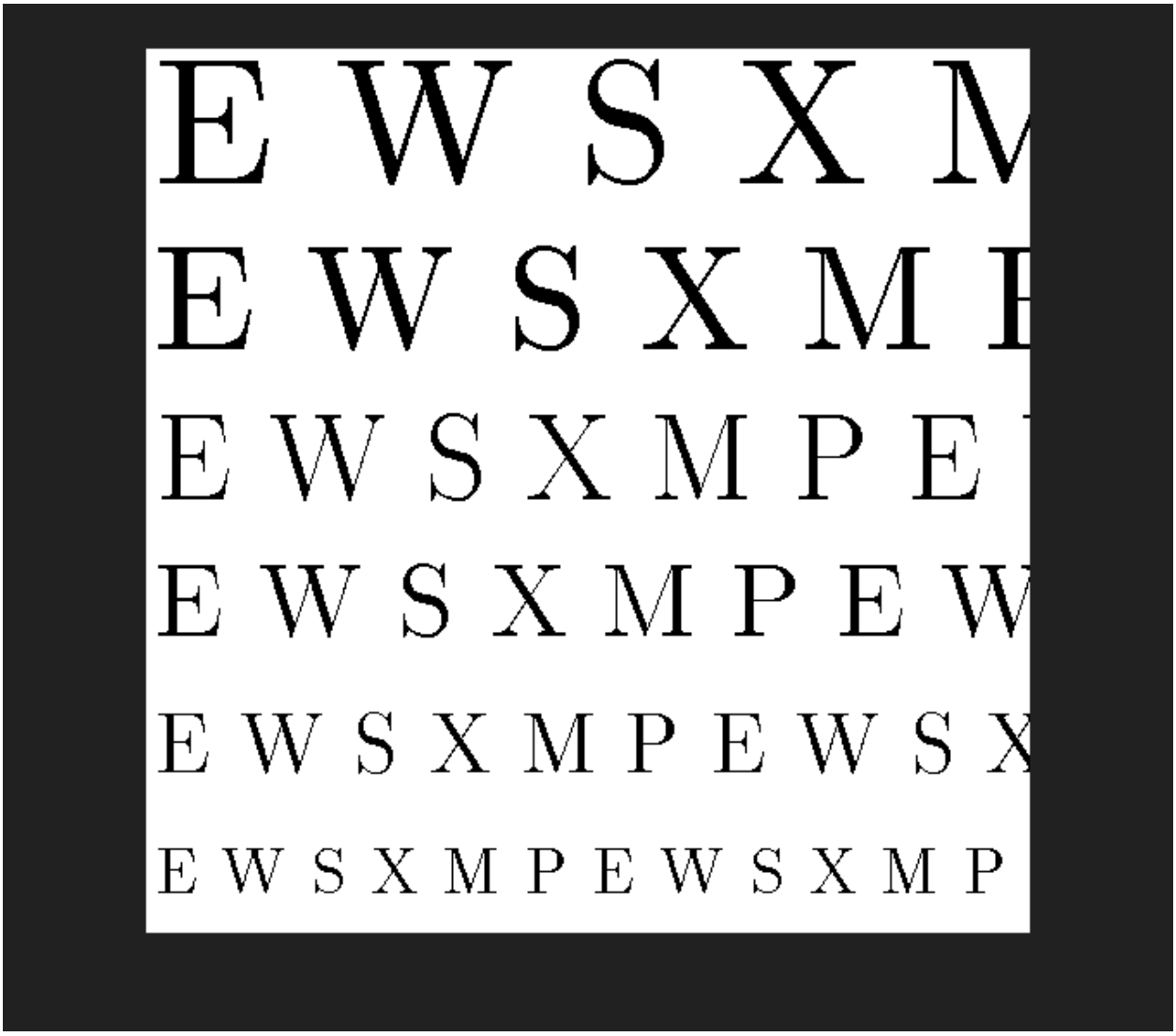
% -> The image start losing quality (getting blurry), most noticeable at
% the bottom rows of letters compare to the original. Also, the width of
% the letter also decrease and the grayscale intensities change to
% black = 0; midgray = 255; and white = 510 (max);
```

```
FIRcoefficients1 = [1 1];
echartFilteredAlongRows1 = filter(FIRcoefficients1, 1, echart, [], 2);
figure;
imshow(echartFilteredAlongRows1);

% (e) Apply a three-point averaging filter along the rows..
%      Display the resulting image.
%      Describe the result image compared to the original.

% -> The image start losing more quality (getting blurrier), most noticeable
at
% the mid to bottom rows of letters compare to the original. Also, the width
of
% the letters decrease (some are only 1 pixel left) and the grayscale
% intensities change to
% black = 0; midgray = 255-510; and white = 765 (max);

FIRcoefficients2 = [1 1 1];
echartFilteredAlongRows2 = filter(FIRcoefficients2, 1, echart, [], 2);
figure;
imshow(echartFilteredAlongRows2);
```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