Include your Matlab code in the report:

to load image: I=load_mgh(path-to-file).

Exercise 1:

Write a Matlab program to compute the magnitude only and phase only versions
of the brain image orig.mgz, and plot (slice 100, sagittal) the results in a 2x2 grid with the following format:

- the upper left and lower left images should be the original gray scale image files (so that you can compare them to the transformed images directly).
- the upper right image should be the image reconstructed from magnitude only information.
- the lower right image should be the image reconstructed from phase only information.

Exercise 2:

Design a low pass filter using a Gaussian with varying standard deviation without using imfilter. Smooth the images with a standard deviation of (0.1, 0.5, 1.0, 1.5) and comment on the results.

Exercise 3:
Write a code to perform the histogram equalization of the attached image (image intensity range 0-255). Display the result (slice 100, sagittal) and comment on it.

Exercise 4:
Write a code to perform median, average filter of a 2D image with varying window size and comment on the result.

Exercise 5:
Write a code to implement piecewise linear interpolation of an image an image and comment on the result.

Exercise 6: (optional)
Write a code to implement computing the gradient of an image, using convolution.

Exercise 7:
Write a one-page report on the Lewis and fox paper and implement DBC between nu_1 nu_2, see if there is a bias (difference image) before and comment on it after running DBC.

Exercise 8:
Run N3 on your own systems; apply it on orig.mgz and comment on the result.

Exercise 9:
Write a one-page report on Sled's N3 paper.

Exercise 10:
9.2, 9.3, 9.4a, 9.4d from the text book.