General Instructions

Organize your report in the following sections:

Members of the team:
List the participants, people soft number, department, graduate/undergraduate status.

Introduction:
Describe the project, the aims of this work and as hrot review of that you did and what were your conclusions. List your aims clearly (e.g. number them) so in the next section you can refer to them.

Methods:
Describe in detail the methods you used in pursuing your project: software, algorithms, equations, etc. Exactly was you did it in your homework. Note that:
- Description of your phantom and its figures should be reported hear (the phantom is one of your methods, it is not a result!).
- Figure of your GUI and examples of the outputs (graphs, images etc) should be included.
Correlate the aims you listed in your introduction to the methods. Example: … to calculate the parameters we used in Aim number 2, we developed an algorithm shown in figure 4 and then implemented it with the Matlab code …”

Results and Discussion:
Hear you report your results and comment about them. Organize them according to your aims, use figures with graphs, images etc.

Conclusions
This should be a short section that reviews your results.

Literature:
If you used any bibliography in your text, report it in this section. Number them and when you refer to them in the text use this number (first referred to, first listed)

CODE:
Important: In the report include:
- A hardcopy of your code, so you can refer to its different sub-routines/functions/etc in your main text.
- Instructions of how to use your code!
  - Also, zip and email it to me (ntsekos@cs.uh.edu) and Junmo An (jman@cs.uh.edu).

Structure and GUI: A graphics user interface (GUI) implemented with Matlab GUIDE will be used for interfacing to your code. Make it functional to help you in debugging and testing your code. Organize and separate the different tasks. As example:
- A part of the GUI maybe devoted to generating a phantom by entering its dimensions, matrix size and its properties. When you run this task, an image of the phantom should appear in a
new window and its corresponding matrix (or matrices) should be then available as input to
the other tasks (data acquisition or analysis).
- Another part of your GUI will be devoted in acquisition and then if you change the
  acquisition parameters (e.g. distance of the x-ray detector) and run it, it should generate
  another window with the results.

**Functions:** create a folder with the name “ProjectFunctions” and inside it include the different
functions you may have written for the specific tasks needed. Those functions will be called by
the GUI as required!

**Comments:** For each function or piece of code you use, write comments that describe clearly
what it does. Include comments at the beginning of each function that describes the parameters
you are using

**Output:**
It is easier to open separate windows to present the results of your code. Check the different
Matlab examples in the course web site. In the windows you present your results add comments
what those results are! That way you can save the output

**Analysis of your results:**
Remember that the **ground truth**, the real object is your phantom! This means that the real thing
is your phantom and you will be comparing your images to this one. Images are the output of
your code.

- Virtual X-ray/Mammography System
- CT Scanner
- Ultrasound Simulator
- MRI Acquisition Simulator
- MRI Contrast Agent Enhancement
- MRI Motion simulation