Exercise 2: Visualization

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In this exercise you will implement a simple visualization program. The program can be written either in C++ or using MATLAB. You receive two spatially aligned cranial data sets, an MR and a CT (DICOM and meta image format).

You will implement a visualization program that provides the following functionality:

1. Ability to load one primary and an optional secondary data set.

2. Display and scroll through axial, sagittal, and coronal slices through the data set(s).

3. Allow control of the alpha blending between the two data sets.

4. Allow window/level operations on the data set(s), using both linear and sigmoid functions.

5. Allow selection of color lookup tables for each data set, both identity and two additional color maps of your choice.

6. Allow selection of one data set and perform Maximal Intensity Projection (MIP) in the axial direction (display result in the "rendering" window).

7. Allow selection of one data set and create a simulated "x-ray" image using orthographic projection in the axial direction (display result in the "rendering" window).

The layout of your application should look similar to that shown below: