Phase contrast magnetic resonance (PCMR) images can be very difficult to appreciate in their native form because gray scale intensities are used to represent flow velocities. As we have learned in class, the human visual system is capable of resolving many more colors than gray scale intensities. Accordingly, it can be useful to represent PCMR images in color. For this project, you will write a MATLAB function that performs several specific tasks:

1) Read in a PCMR image in DICOM format.
2) Determine the range of flow velocities represented in the image based on the velocity encoding (VENC) value associated with the image. For the images we will work with, that value is recorded as the minimum possible velocity measured in the image, which is contained within the DICOM header as “RescaleIntercept”. The maximum possible velocity measured in the image is of the same magnitude but opposite in sign.
3) Generate a color map that transitions linearly from blue (minimum velocity) to green (zero velocity) to red (maximum velocity) that is scaled to accommodate the range of velocities encoded in the image.
4) Generate three MATLAB figures that show: the original image (figure 1), the colored representation of the image generated with your color map (figure 2), and
a color surface representation of the image (figure 3). Each image should include a legend that indicates how intensities or colors represent flow velocity. Include code to label all plot titles, axes, and legends appropriately in your function.

Students will complete the project in two-member teams. A sample call for the function provided by Frakes and Janvrin would read:

```python
pcmr_frakes_janvrin('image_title');
```

where image_title is the title of a DICOM image to be processed. Grading will be based on code functionality. Specifically, each of the four tasks listed above must be accomplished by your code.