Introduction:

Given a set of 200 2D 'cine' MR images, we are supposed to track the displacement of a region of interest. A 2D fixed image was also provided, to track displacement relative to a reference position.

Method:

We registered all the images using a rigid registration method by using SimpleITK library in python. After registering each image we resampled them by ResampleImageFilter and casted as .png images. All the resampled .png images are written in a separate file called "Resampled_images". Finally we stacked all the .png images together and generated a video file(.avi) of 8 frames per second by using opencv library with python. The video file is saved as "final-project.avi"

Results:

Our python script registered 200 2D "cine" MR images and stacked them together to generate a video file in order to display the segmentation of the region of interest on each cine image. The video file consists of 25 seconds, 8 frames per second, written as "final-project.avi".

Discussion:

We used SimpleITK library throughout the whole image registration process and used opencv to stack the resampled images to a .avi video file. Our python script can be run using the following command in a command prompt "python Final-project.py". This script will generate a video showing displace regions from 2D cine images. We tried our best to register and resample the images optimally.