ASSIGNMENT-3

With the advent of multi band MRI machines, It is now possible to acquire multiple slices in parallel. This has lead to a significant decrease in the TR time for example we can now acquire data at the rate of TR = 645ms. In this assignment, you are required to perform slice time correction using linear interpolation.You will be given a Slice Time acquisition file which contains the time at which each slice was acquired.Note that this time should vary from 0 to TR any other value would be an error.The Slice Time acquisition file consists of <Z>,number of slices in the image, no of lines where the i^{th} line corresponds to the time the i^{th} slice was acquired on.Your task will be to bring all the slices to target time using linear interpolation. For the sake of simplicity let us keep the first and last volume constant.Your program should take following parameters :-

INPUT:-

1. Image File name
2. TR
3. Target Time*
4. Slice time acquisition file*
5. Output File name (say **output**)

OUTPUT :-

1. It should create a file **output.nii.gz** which contains slice time corrected image corrected to the target time*.
2. It should also create a file **output.txt** which contains either SUCCESS or FAILURE based upon if the input was correct or not.

Please note that the input image will be of type NIFTI format only.

You have to submit a executable program called sliceTimeCorrect **.** We should be able to run the program as follows:

./sliceTimeCorrect inputFileSuffix <TR> <Target_time> sliceTimeFile outputFileName

Submission Instructions

1. Submit your code in a .zip file named in the format <EntryNo>.zip.Make sure that when we run “unzip yourfile.zip” your code should be produced(and **not a folder containing code**).