Assignment 2

Problem 1

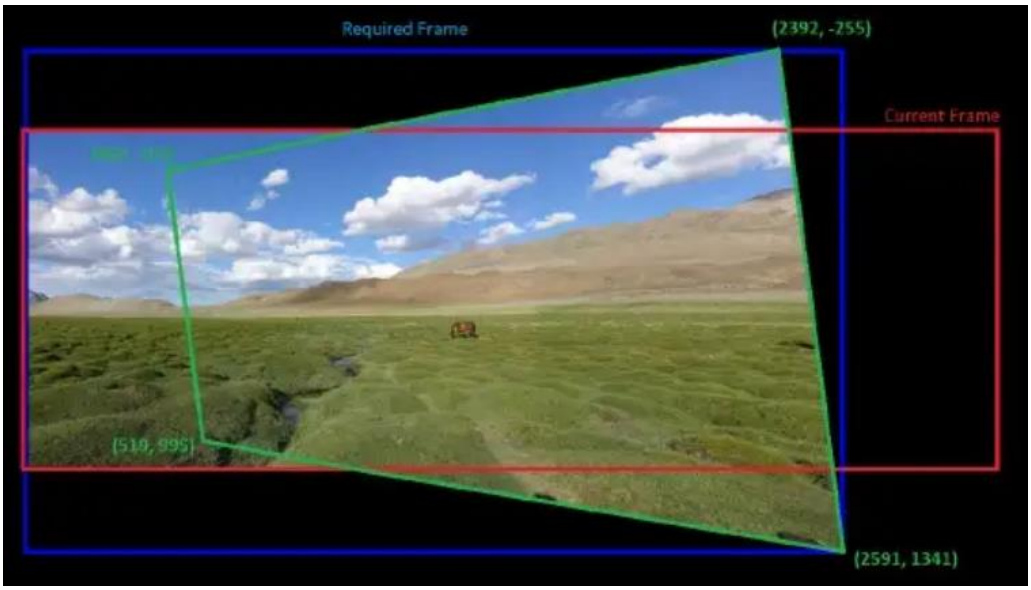
Procedure

Step 1: Applied CLAHE to amplify the contrast. And applied cylindrical perspective on the images.

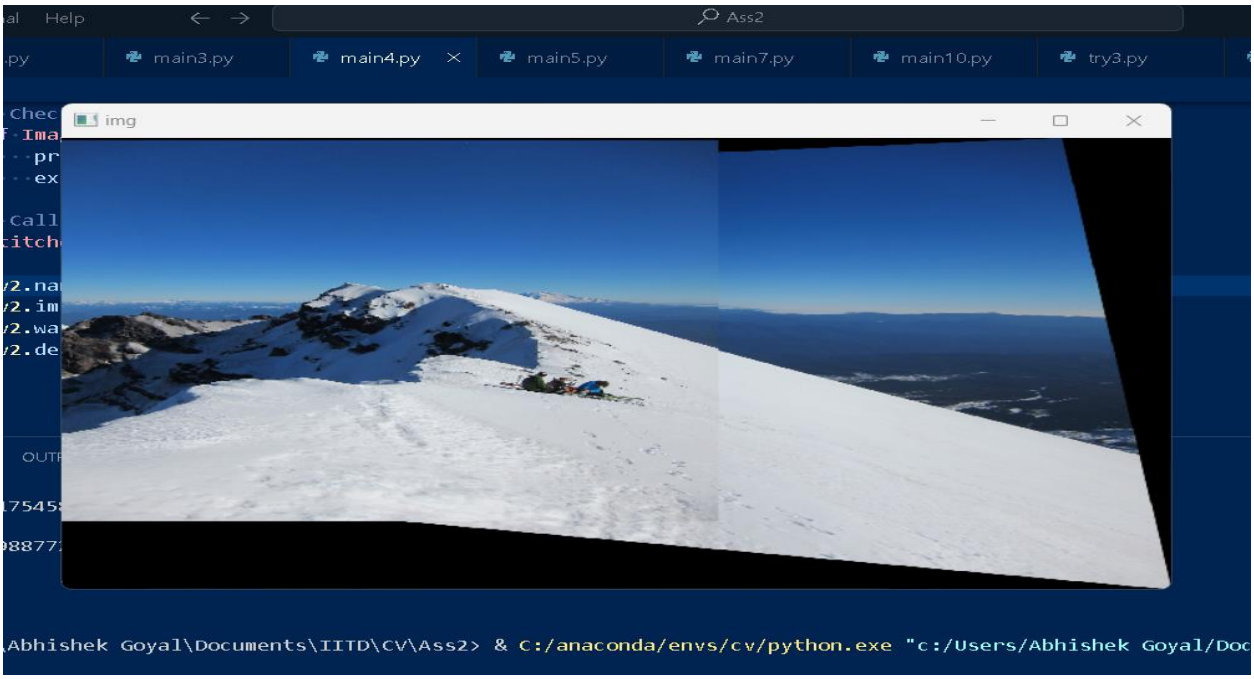
Step 2: Applied SIFT to get Key points for an image.

Step 3. Found homography between the cylindrical images.

Step 4. Found the larger frame for both the images and fit them in it. Like shown in the image below.



Step 5: Output for two images



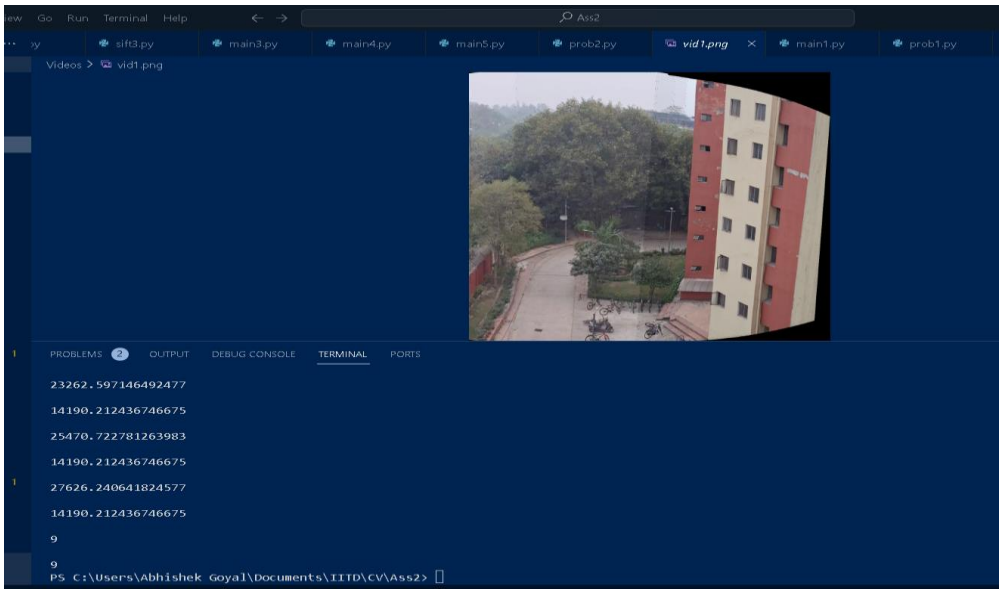
Step 6: For 6 images, I had to just iterate the previous steps 5 times keeping previously generated image as base image. The result is shown below.

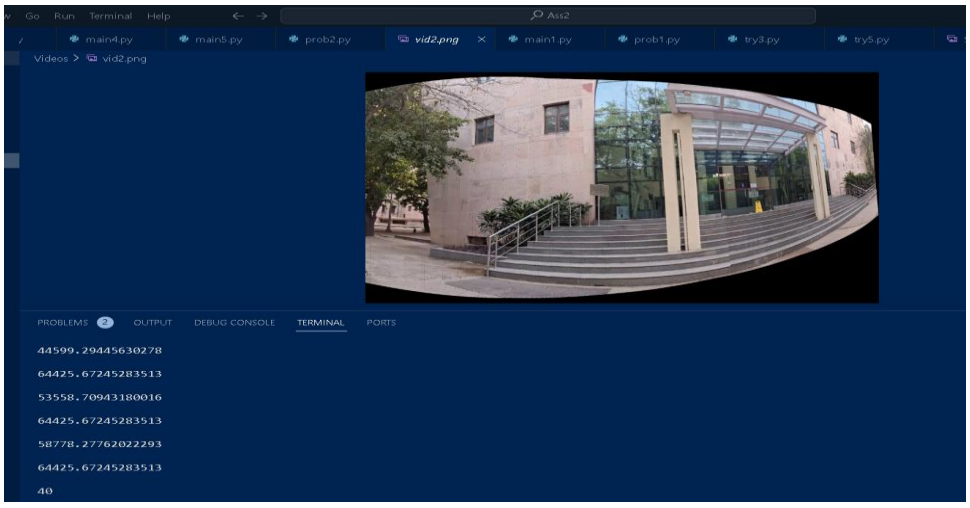
Problem 2

Step 1: I consumed the frames from the videos.

Step 2: Converted them to greyscale, since the frames were too many that needed to be reduced. I used the difference between intensity of difference between images and then again used difference of difference of intensities to capture where the change was maximum. In short used double derivative.

Step 3: Applied code of problem 1 to stitch the images.





Challenges:

1. SIFT was very slow, even after SVD calculation of homography matrix, due to calculation of descriptors.
2. Without cylindrical perspective more than 2 images did not join.
3. Backward warping was creating black spots on images.
4. Images had different contrasts because images had different light angles.

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