Question - 5

Code folder - All the code is in **main.py** . Other files like dct.py, omp.py are just intermediate codes.

Part - b

Coded Snapshot

Part - C

H=height of video frame = 120 (as mentioned in the NOTE of Q.5)
W=width of video frame = 240 (as mentioned in the NOTE of Q.5)
Patch_size= 8 (** we have taken a patch of size 8x8 and implemented OMP algorithm on these patches)
T = number of consecutive frames

Ax = b
where b = is the vectorized form of the video frames of size 8x8xT

Φ is a matrix of size m x n
where m = patch_size*patch_size n=patch_size*patch_size*T
Φ = [diag(s1) | diag(s2) | diag(s3)]
Where s1 = random code pattern of first frame
Similarly s2 and s3

A = ΦΨ where Ψ is 2-d orthonormal DCT basis

Part - E,F,G

Our reconstruction is not that good and reconstruction error is very large because of some normalization issues. We will fix it as soon as possible and post it. For checking just run **main.py**

** **NOTE** - We have written the code in PYTHON instead of MATLAB. Reason being :

1) More familiarity with python compared to matlab
2) Initially tried with matlab but Institute Matlab was busy (maximum users reached problem) so shifted to python

From next assignment we will make sure that we write in matlab