CS825-001, Spring/Summer 2020
Assignment 4- Part 1
Submitted to Dr. Xue Dong Yang
By

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Q1) input image car.raw

Output image – magnitude is computed from dft and then it will be scaled. Below image is the final scaled image.

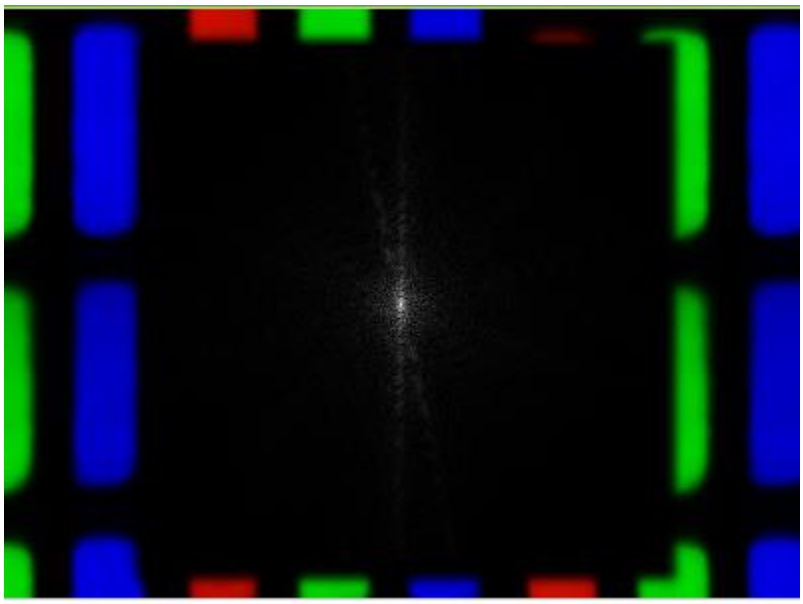

Fig 1- final scaled image after computing magnitude of dft of car image.

Screenshots of computation performed during the execution of program for the car input image

```
(base) C:\Users\Owner\Desktop\Image Processing\assignment 4>python part1.py "C:\Users\Owner\Desktop\Image Processing\assignment 4\input images\car.raw" 256 256 "C:\Users\
Owner\Desktop\Image Processing\assignment 4\output images"


 original image
 [[195 196 189 ... 173 183 178]
 [180 190 191 ... 180 185 174]
 [173 178 178 ... 187 186 159]
 ...
 [ 35  33  36 ...  89  85  81]
 [ 35  38  42 ...  88  85  78]
 [ 35  38  38 ...  88  90  82]]


 complex image-
 [[ 195.+0.j -196.+0.j  189.+0.j ... -173.+0.j  183.+0.j -178.+0.j]
 [-180.+0.j  190.+0.j -191.+0.j ...  180.+0.j -185.+0.j  174.+0.j]
 [ 173.+0.j -178.+0.j  178.+0.j ... -187.+0.j  186.+0.j -159.+0.j]
 ...
 [ -35.+0.j   33.+0.j  -36.+0.j ...   89.+0.j  -85.+0.j   81.+0.j]
 [  35.+0.j  -38.+0.j   42.+0.j ...  -88.+0.j   85.+0.j  -78.+0.j]
 [ -35.+0.j   38.+0.j  -38.+0.j ...   88.+0.j  -90.+0.j   82.+0.j]]


 dft-
 [[ 6.34765625e-03+0.j          4.10463518e-03-0.00317044j
   8.30660653e-03-0.00760937j ...  1.61494179e-03-0.00349226j
   8.30660653e-03+0.00760937j  4.10463518e-03+0.00317044j]
 [ 3.49052299e-03+0.00165803j -4.17999456e-03-0.0031206j
   1.54700424e-03-0.00657368j ...  3.08099127e-03-0.00103597j
  -8.31909401e-04+0.0031085j  -6.07854557e-04-0.00030355j]
 [ 5.34636217e-03-0.00476163j -2.95409949e-03-0.00374931j
   4.07602775e-03-0.00418056j ... -4.67005753e-06-0.00578146j
   3.65569746e-03+0.00190576j  4.64127131e-04-0.00294768j]
 ...
 [ 7.35332300e-03+0.00134421j -7.96318365e-04+0.00200256j
   3.18572887e-03-0.00431925j ... -5.95257542e-03-0.00729067j
   4.63999293e-03-0.00609872j  4.20562183e-03+0.00579222j]
 [ 5.34636217e-03+0.00476163j  4.64127131e-04+0.00294768j
   3.65569746e-03-0.00190576j ... -3.48943018e-03+0.00416798j
   4.07602775e-03+0.00418056j -2.95409949e-03+0.00374931j]
 [ 3.49052299e-03-0.00165803j -6.07854557e-04+0.00030355j
  -8.31909401e-04-0.0031085j  ... -9.05479635e-04-0.00608212j
```

Fig 2- computation performed with the input car image

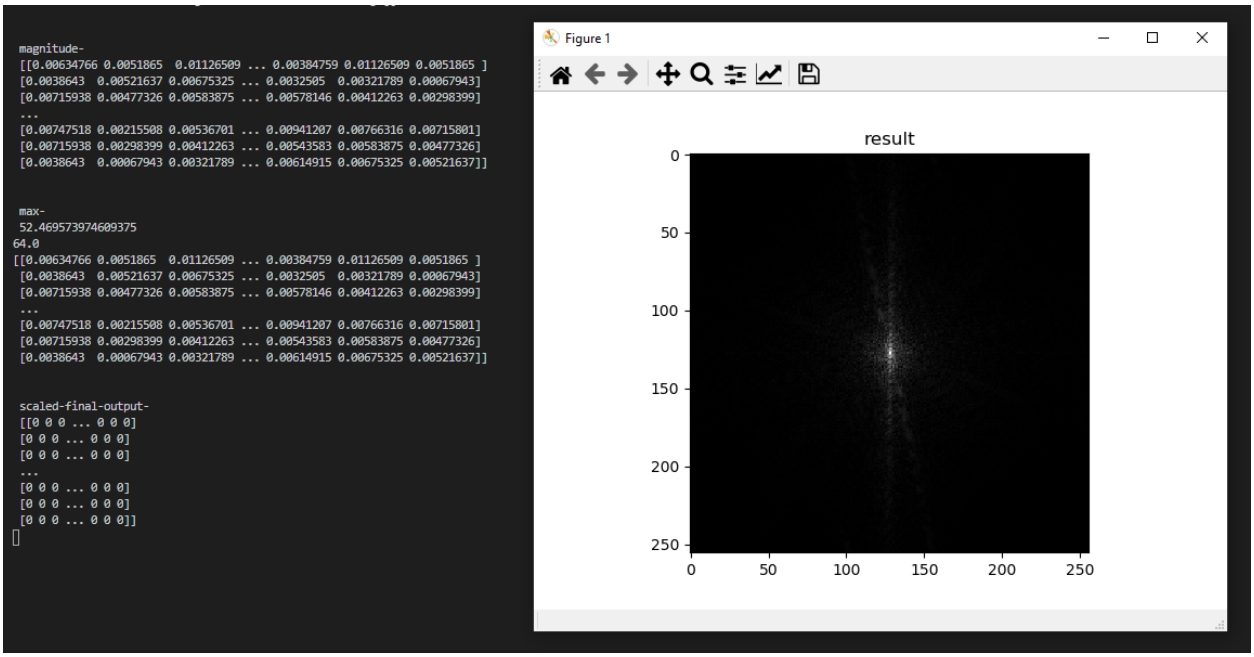

Fig 3- computation performed with the input car image

Q1) input image square256.raw

Output image- magnitude is computed from dft and then it will be scaled. Below image is the final scaled image.

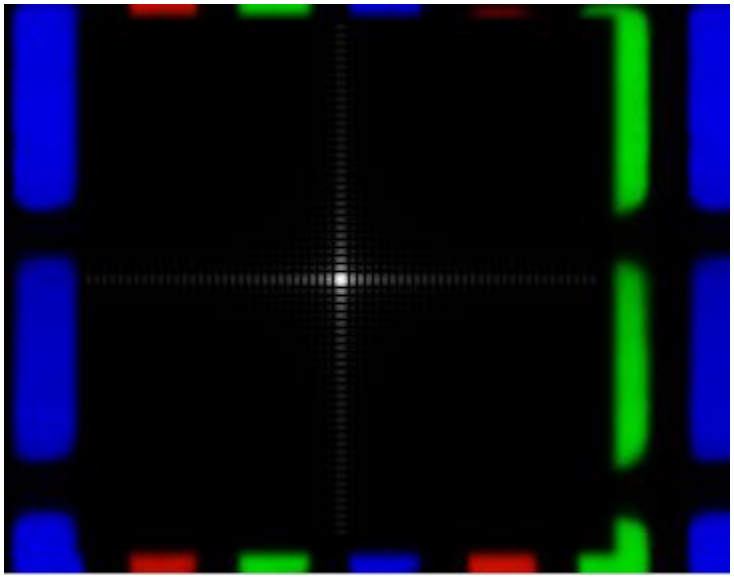

Fig 4- final scaled image after computing magnitude of dft of square image

Screenshots of computation performed during the execution of program for the square input image

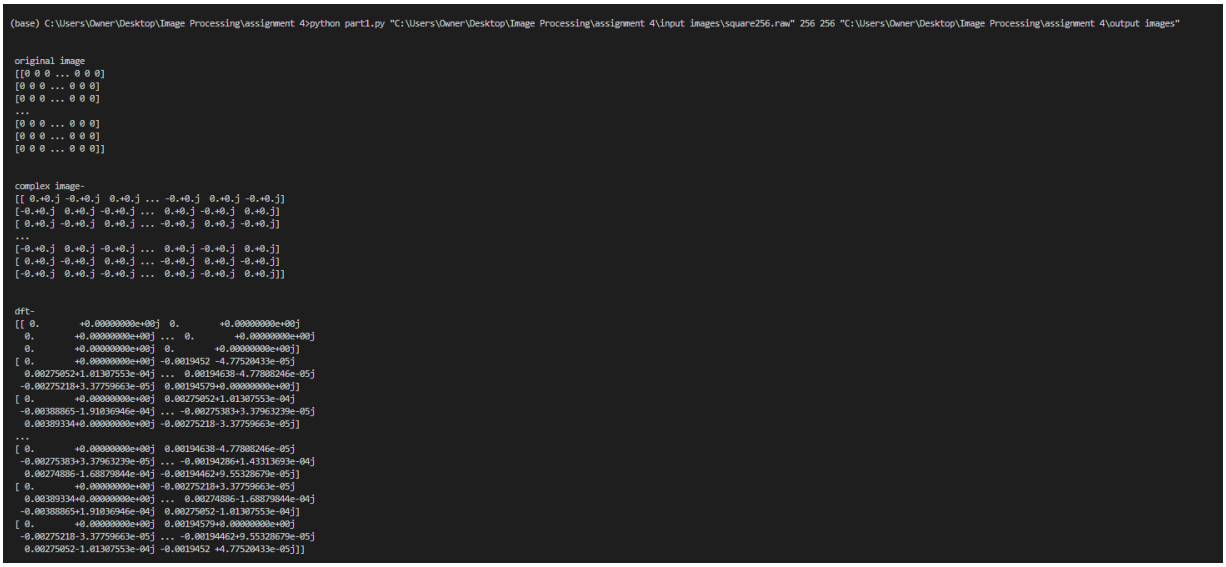

Fig 5- computation performed with the input square image

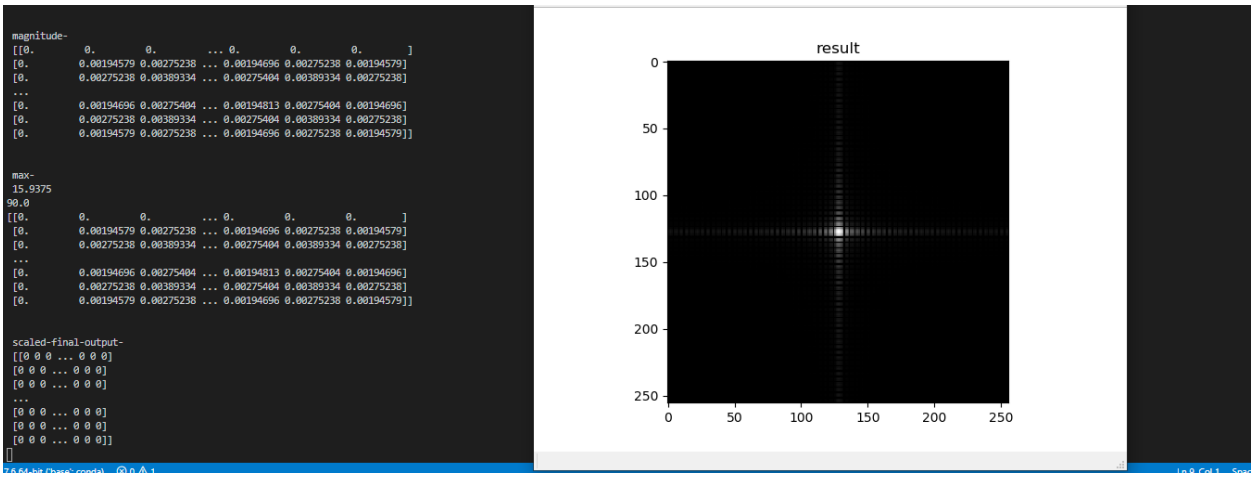

Fig 6- computation performed with the input square image