Mission: Prove Your Relevancy!
CSE 220: Online on Fourier Transform

Time: 40 minutes

Background:

Suppose you are an agent of a secret service. The life of a secret agent is never easy. Moreover, you are getting older and older (almost half of your BUET life has gone). As the agency values youth and vigor, agents reaching this stage must prove their continued relevancy. To test your skills, you have been assigned a crucial mission to recover a secret letter from a noisy image. Your performance will determine whether you still have what it takes to stay in the game. Otherwise, you will be killed after 40 minutes, as the company fears that if they spare your life, you might expose their secrets.

Mission Details:

An intercepted image file `noisy_image.png` which contains a highly distorted letter, corrupted by noise. The service has briefed you on the following:

- Your task is to filter out the noise using Fourier Transform techniques and recover the secret letter.

- Your task is simply to identify the letter. You don't need to make the image perfectly clear, just denoise it enough to recognize the letter.

- You have been given the skeleton for taking image as an input in a 2D array.

Hints:

- Apply FT row by row of the image.

- Try to figure out which frequencies can be the noise.

Submission:

Prepare and submit the following:

- Rename your Python file as `2105XXX.py` and submit it.