Assignment 3

Write a python code that depends on the OpenCV library and that performs all the methods of this lecture:

1. Fourier transform: illustrate the properties of the FT.
2. DFT and DFT2 and their inverses: compute and visualize some examples.
3. Illustrate the reconstruction from DFT and DFT2.
4. Frequency domain filters and their applications.
5. Sampling and FT: illustrate the aliasing, use of anti-aliasing filter.
6. DCT1 and DCT2 and application to denoising and compression.
7. DWT1 and DWT2 and application to denoising, compression and edge detection.

Simulations should be conducted to evaluate (qualitative and quantitative) and compare the methods with various parameters.