ECE 278A - HW #5: Wavelets Transform (DUE Wed. November 14th)

1. Write two Matlab functions to implement the 2D Wavelets (using the Haar transform). Your functions (one for the analysis and one for the synthesis) should have the following format:

   ```
   [F]=WaveletAnalysis(f,n);
   ```

   where

   - f is a given image that will be provided (gray scale, 8 bits quantized);
   - n is the number of level of the wavelet decomposition;
   - F is the transformed image (of the same size of the input one);

   ```
   [g]=WaveletSynthesis(F,n);
   ```

   where

   - F is the output of the analysis function;
   - n is the number of level of the wavelet decomposition;
   - g is the reconstructed image;

   Make sure you exploit the separability of the Haar filters.