ECE 515 HOMEWORK 3 (20 POINTS)

Due March 15

For the following assignments, use only the following functions: downsampling, upsampling and filtering.

1. (8 points)
   Gaussian Pyramid
   Write a computer program following these steps:
   a. Select and display an image
   b. Use the separable filter with kernel: 1/16*[1 4 6 4 1]
   c. Compute five levels of the Gaussian pyramid and display them

2. (12 points)
   Laplacian blending
   Write a computer program following these steps:
   a. Select two images of two objects to blend
      Make sure the images have the same size and the objects are centered in the images
   b. Calculate the Laplacian pyramid for each image
   c. Generate a binary mask image and construct the Gaussian pyramid of the mask
      Note: you will have two (complementary) masks, one to mask image 1 and one to mask image 2
   d. Multiply each Laplacian image by the corresponding Gaussian mask
   e. Add the two weighted pyramids and reconstruct the blended image

   Show your results and comment