Lab 3 (assignment date: 2018/04/11; due date 2018/04/24)

- ## Frequency Domain Filtering

    1. Implement the Sobel filter to the input images Q3_1.tif in both spatial domain and frequency domain. Compare the results. Refer to slides 78 to 81 of Lecture 3.
       File name: Sobel_学号.m

    2. Implement the Gaussian low pass and high pass to the input image Q3_2.tif. Compare the results for $D_0 = 30, 60, \text{and } 160$, respectively. Create function Gaussian_学号 with parameter D0
       File name: Gaussian_学号.m

    3. Implement the Butterworth notch filters to the input images Q3_3.tif. Refer to slides 110 to 114 of Lecture 3. .
       File name: Butterworth_学号.m

- Discuss the following, but **NOT** limited to the following:
  Explain why perform a shift in Step 4 on slide 81 of Lecture 3 in the first Exercise.
  Discuss the effect of D_0 in Gaussian lowpass and highpass filter, and the general guideline of the choice of D_0 for different applications.
  Discuss in the above question 3, how the parameters in the notch filters are selected, and why.

- Send your codes and report to
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- Image files are named accordingly.