BLG 513E Image Processing

Homework #1

In this homework, you are required to implement **Canny Edge Detector**.
You should write your own code, it is not allowed to use any edge detection code from other sources.

Canny Edge Detector Algorithm

1. ***Convert to Grayscale***
2. ***Smoothing****: Blurring the image to remove noise.*
3. ***Finding gradients:*** *The edges should be marked where the gradients of the image has large magnitudes.*
4. ***Non-maximum suppression:*** *Only local maxima should be marked as edges.*
5. ***Double thresholding:*** *Potential edges are determined by thresholding.*
6. ***Edge tracking by hysteresis:*** *Final edges are determined by suppressing all edges that are not connected to a very strong edge.*

Policy: Collaboration in the form of discussions is acceptable, but you should write your own code by yourself. Cheating is highly discouraged for it could mean a zero or negative grade from the homework. If a question is not clear, please let me know via email.

Submission Instructions: Please submit your homework through the Ninova web site. Please zip and upload all your files using filename studentID_HW1.zip. You must provide all functions you wrote with your zipped file. Functions you do not submit may cause you lose a portion of your grade. Please make sure that you comment your code.

You must also write a report that contains input and output images. Input images are given in the images folder and if you want, you can apply your code into other images. You should also explain the usage of your program. You should also include report.pdf file with your zipped file.