**Basic Concepts:** The general criteria for canny edge detection include following features:

* Detection of edge with low error rate, which means that the detection should accurately catch as many edges shown in the image as possible
* The edge point detected from the operator should accurately localize on the center of the edge.
* A given edge in the image should only be marked once, and where possible, image noise should not create false edges.

**Algorithm:** The Process of Canny edge detection algorithm can be broken down to 5 different steps:

1. Apply Gaussian filter to smooth the image in order to remove the noise.
2. Find the intensity gradients of the image using Sobel filter.
3. Apply non-maximum suppression to get rid of spurious response to edge detection.
4. Apply double threshold to determine potential edges. Used different threshold values for different images.
5. Edge link: Finalize the detection of edges by suppressing all the other edges that are weak and not connected to strong edges.

I have tried different values of kernel size for gaussian smoothing and finalized with the kernel size of 3. Similarly, after trying various sigma values, I have finalized the sigma value as 1. Regarding value of percentageOfNonEdge, It is different for different images like for images lena.bmp, joy1.bmp and pointer1.bmp, the value is 0.15 while for image like test1.bmp the value is 0.90. Please refer attached Jupyter notebook file for more imformations.

**Results:** Please find the results images attached below**:**

Image Gauss filter Gradient Max Suppression Thresholding Edge linking

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