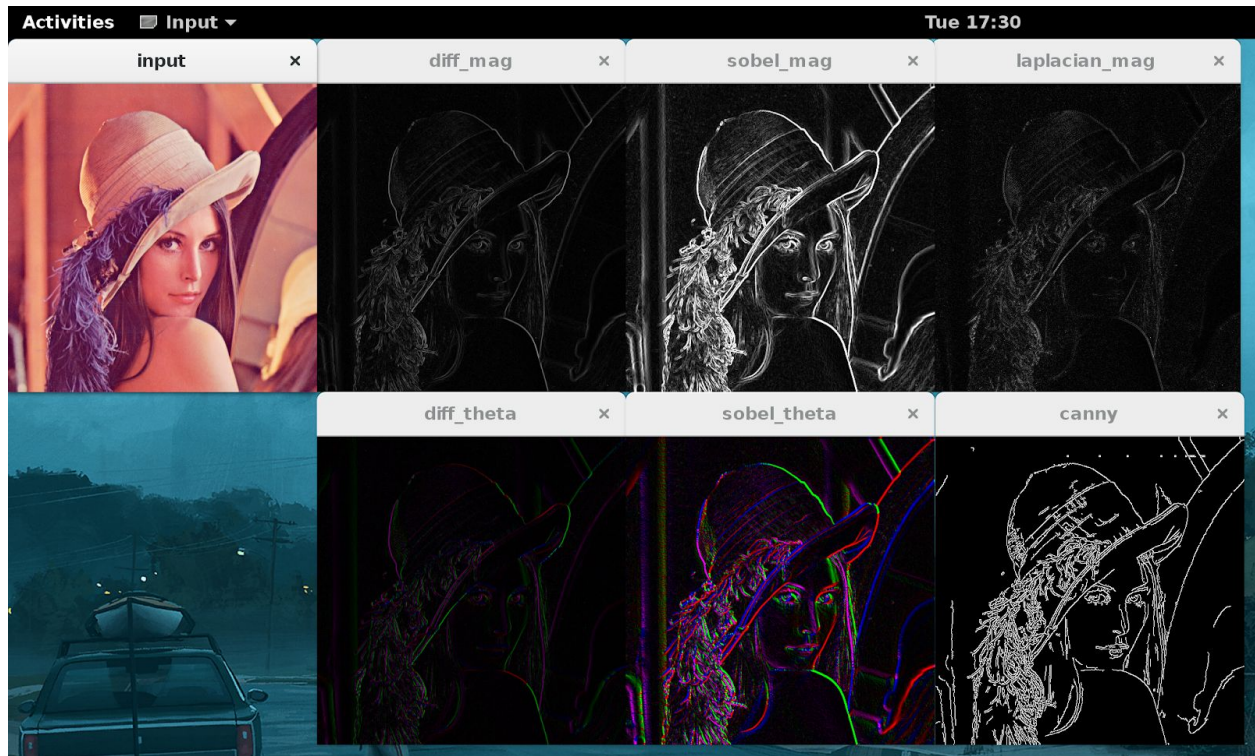
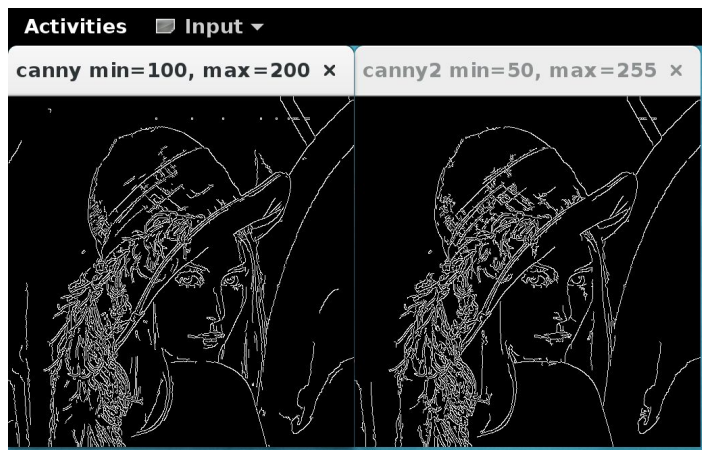


Q1.



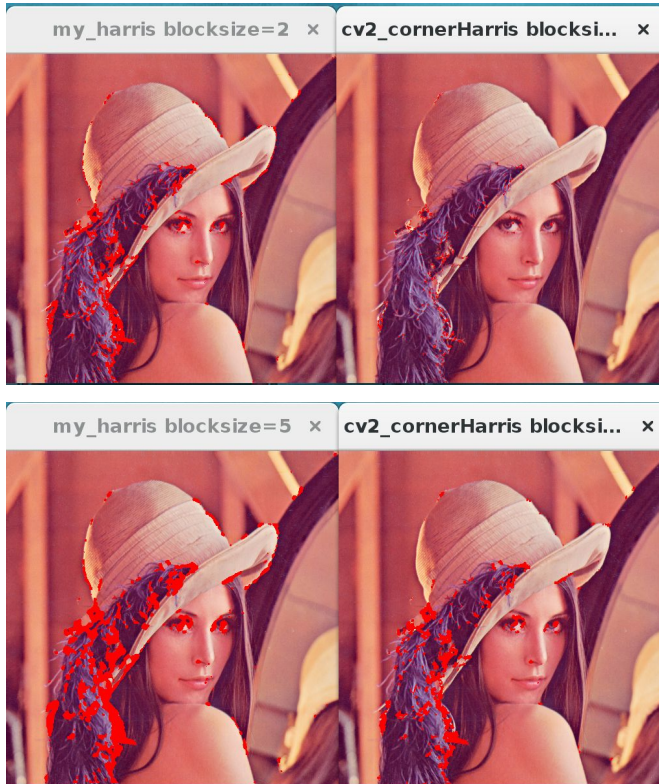
1.1. To reduce image noise and get a more accurate gradient, I run a low-pass filter to smooth high frequency areas caused by noise that do not correspond to actual image information.

1.2. The two threshold parameters correspond to the *min* and *max* values respectively of Hysteresis Thresholding. This function evaluates which edges are really edges and which are not. All gradients with higher values than the max are edges, those under the min are not. The edges in between the two values are determined based on their continuity with the higher gradient sure-edges. This operation can lead to more accurate edge detections than the methods used in 1.1 such as sobel.

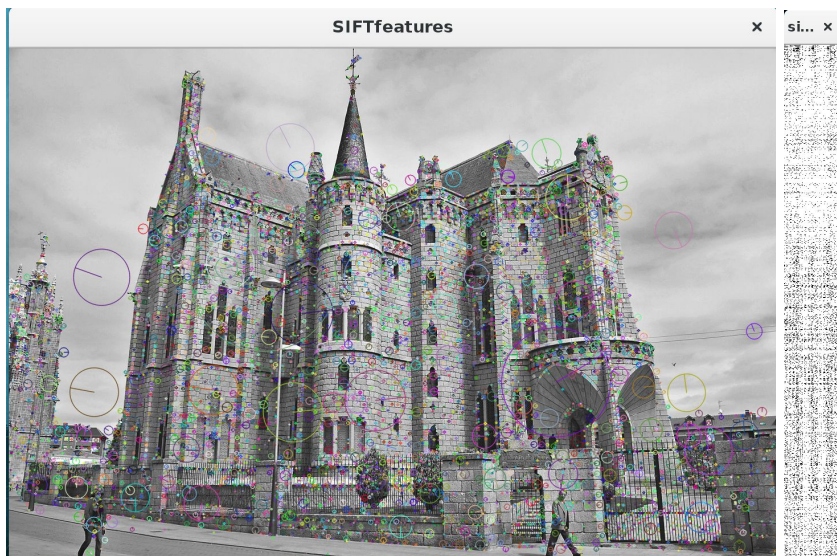


Q2.

2.1. The parameter *blocksize* determines the *blocksize*  $\times$  *blocksize* neighbourhood size of pixels used to compute *m*. The larger the blocksize, the more features the corner detectors return.



2.2 The *size* of the keypoints is the size of the neighbourhood of pixels it represents. It helps with determining scale. The *angle* specifies the keypoints' orientation. The  $n \times 128$  descriptors encode a histogram of the gradient orientations within the patch.





2.3 Overall, the matches filtered using a ratio-test after brute-force were better than the brute-force only matches. The ratio-distance test removed many inaccurate outliers.

