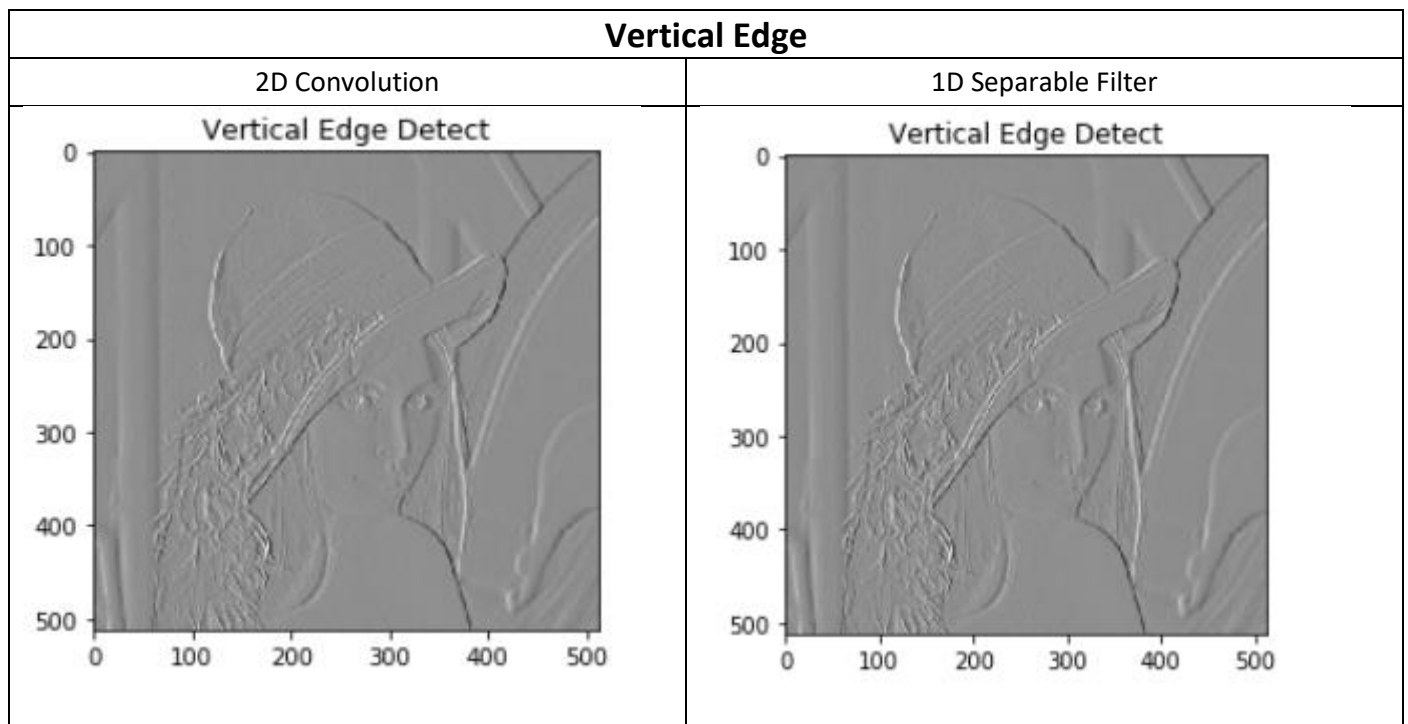
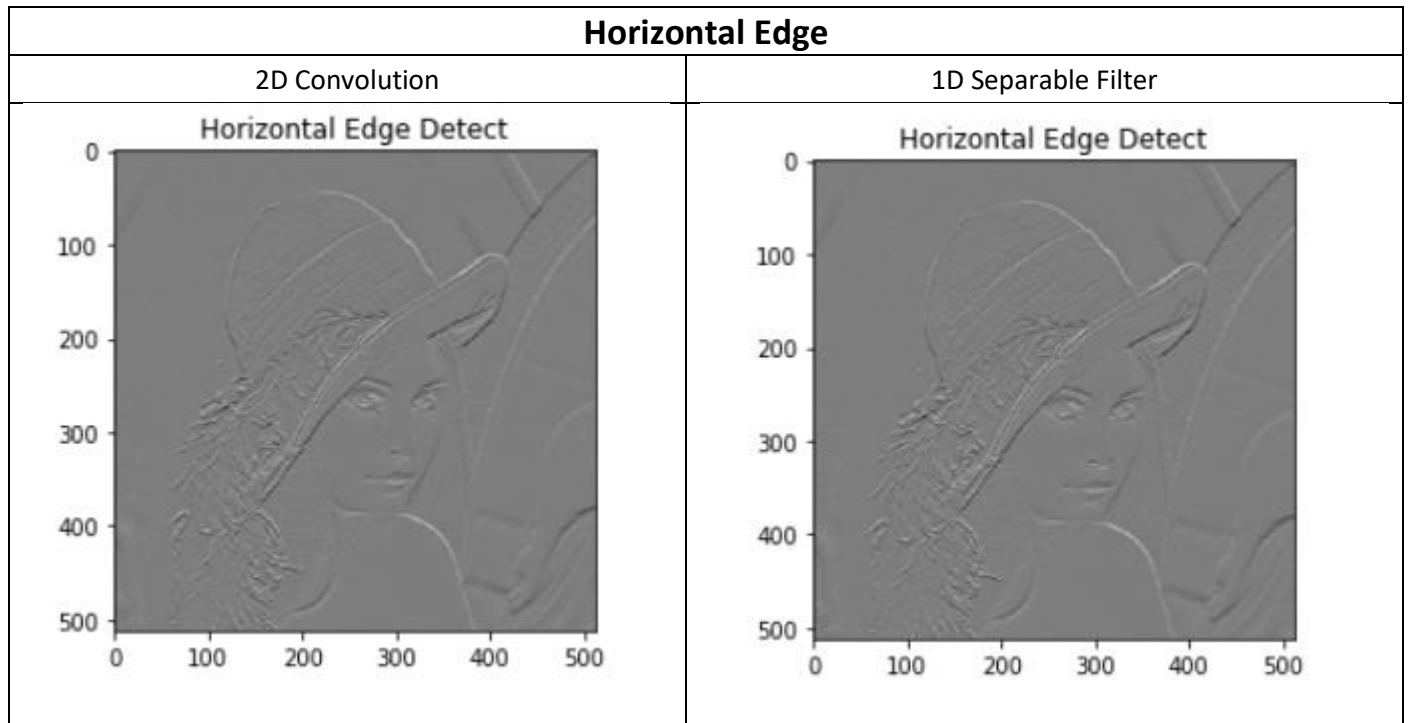
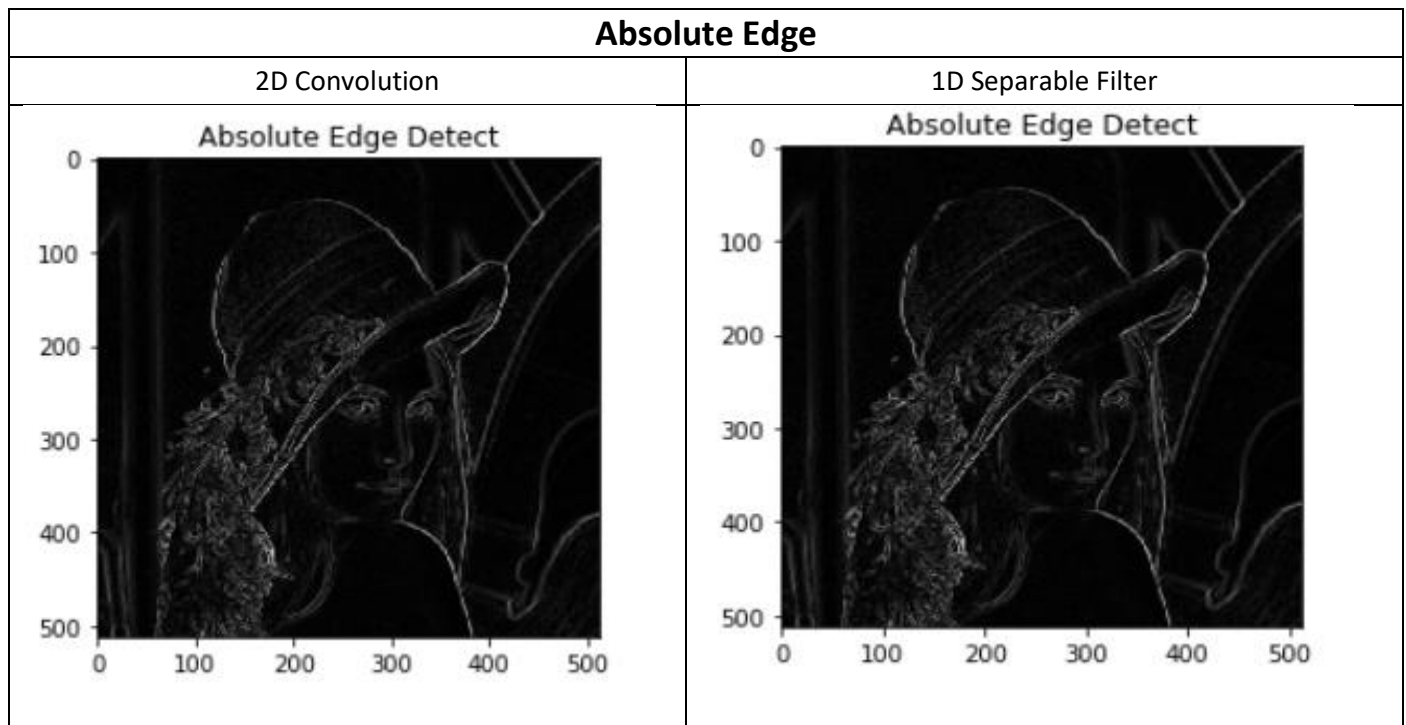


Question 1:

2D convolution and 1D separable filter results comparison





c. Filtering an M-by-N image with a P-by-Q filter kernel requires roughly $MNPQ$ multiplies and additions. If the kernel is separable, you can filter in two steps. The first step requires about MNP multiplications and additions. The second requires about MNQ multiplications and additions, hence all in all we need $MN(P + Q)$.

d. With 100*100 averaging filter following are the results that I got

Machine Configuration used is as follows:

CPU: Intel Core i7 7700HQ CPU @ 2.80GHz

RAM: 8GB

Time required for 2D Separable filters: 13.329038 seconds

Time required for direct 2D filters: 7.835367 seconds

Question 2:

