Lab 10 Summary

Exercise one:

- the median filter can be implemented by going through each pixel and putting into a vector the corresponding pixel values (the kernel centered into the current pixel and take the pixels that belong to the matrix – that is check the coordinates against the image boundaries)
- sort the vector
- pick the value in the middle of the vector
- the destination pixel receives the picked value

Exercise two:

- the values of the Gaussian Filter are computed using the given formula (gaussian distribution)
- use the convolution function from previous lab (Lab 9) to compute the resulted image
- ! NOTE: the values of the filter are float value, but the convolution function works with integer valued filters
- Solution: as the convolution automatically scales the destination matrix, use a multiplicative constant to transform the filter into an integer valued matrix

Exercise three:

- compute the corresponding vectors with the given formulas
- deal with the floating-point values as previously stated in exercise two
- apply convolution sequentially, using the X and Y vectors
- ! NOTE: convolution is made for a square matrix, so modify the function so that is supports non-square matrices (compute the vertical and horizontal middles - k1 and k2, not just the middle of the square matrix - k)