

Lab 2. Task 1- preparation task

Template for answers

Save this document as a .pdf document before submitting.

Student names and LiU-IDs: (Max 2 students per group):

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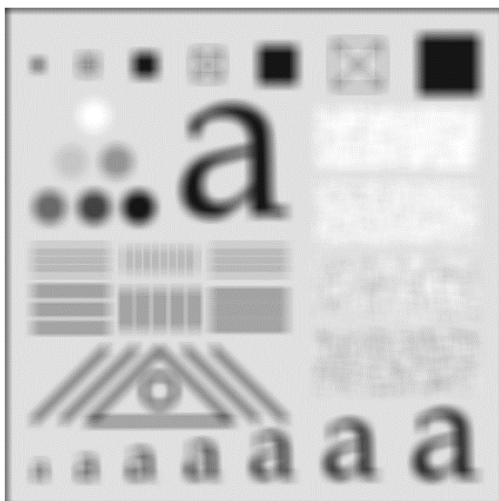
Version (in case you need to re-submit): 1.0

1) Testing different box filters

1) Image1:



2) Image2:



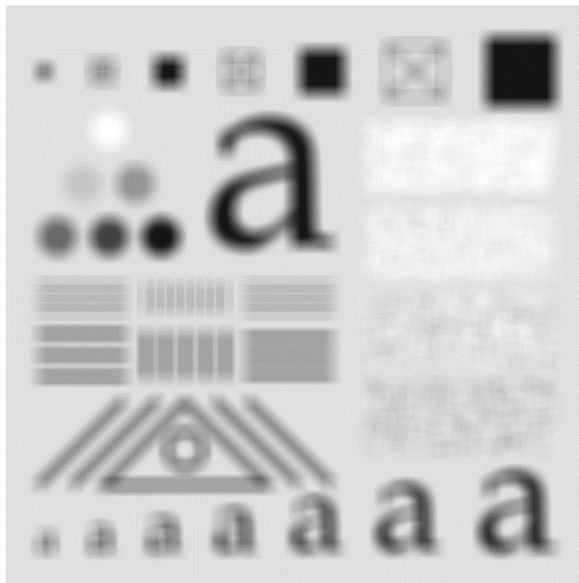
3) Does the 21×21 box filter have a lower or higher cutoff frequency than the 9×9 box filter? Explain why!

% This means that 21x21 has a lower cutoff frequency because it
% because it is filtering out more of the higher frequencies.

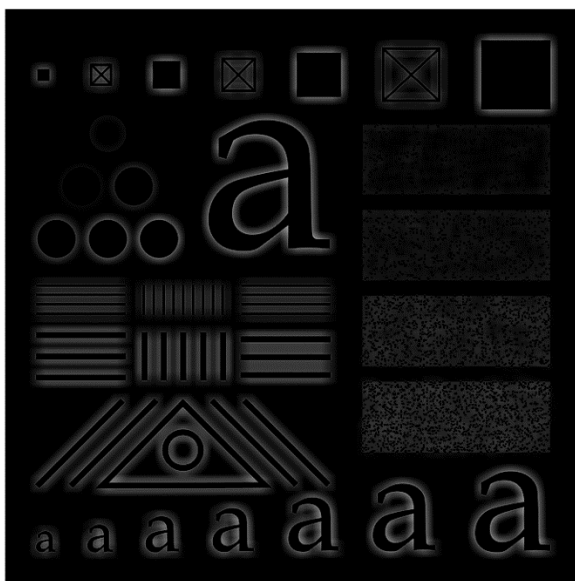
4) What is the reason for these dark borders in Image2?

% Zero padding introduces dark borders in the filtered image.

5) Image3:



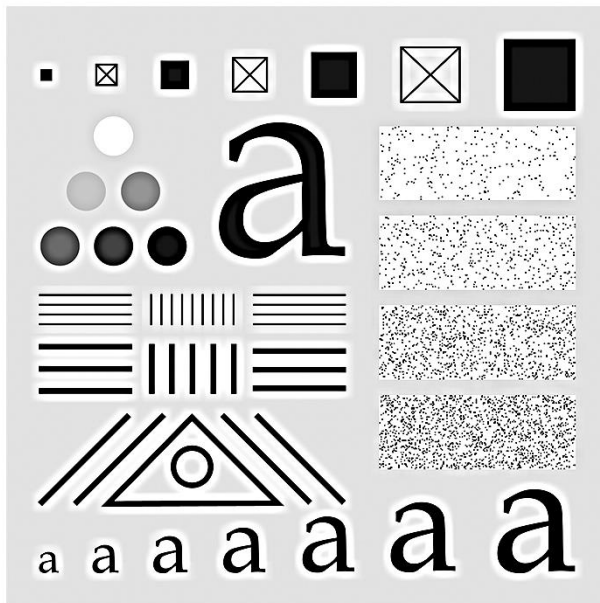
6) Image4:



7) Why is *Image4* so dark? What is the average value of the pixel values in *Image4*? And why?

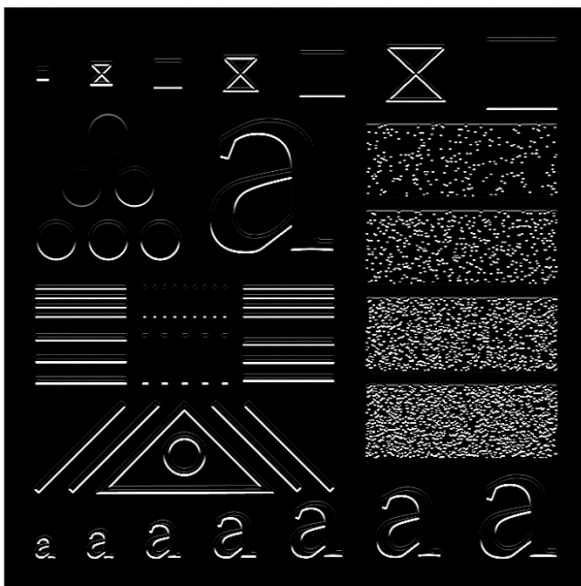
```
% It is being clipped at 0 by the display causing it to contain negative
% values. This results to the black areas. This can be seen in the average
% value => -1.5736e-15.
```

8) Image5:

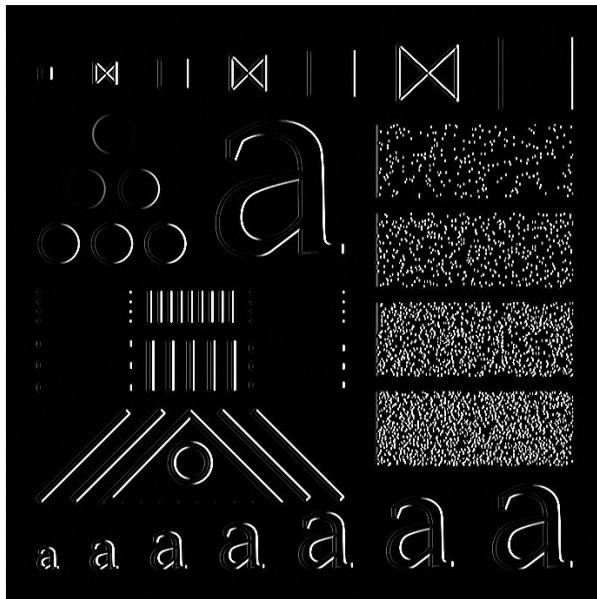


2) Testing Sobel filter kernels and gradient

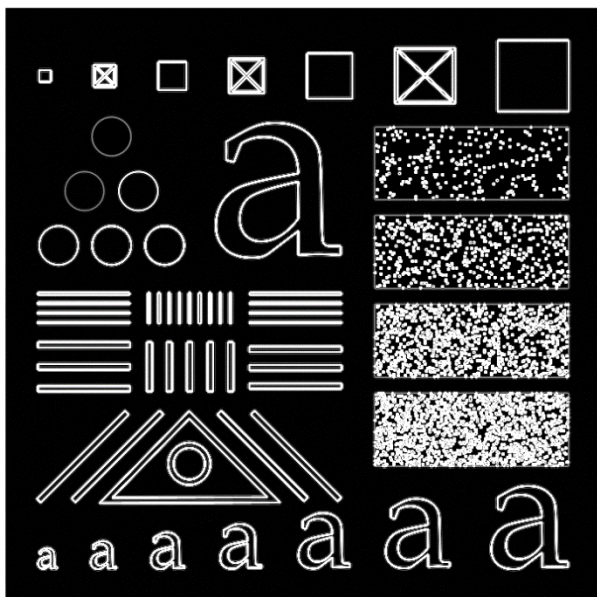
9) Image6:



10) Image7:



11) Image8:



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