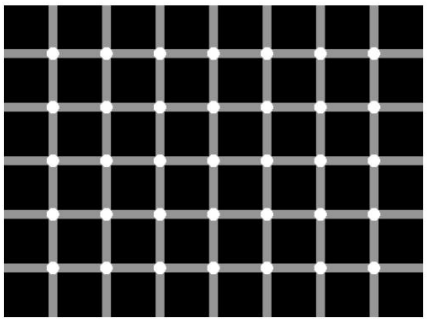
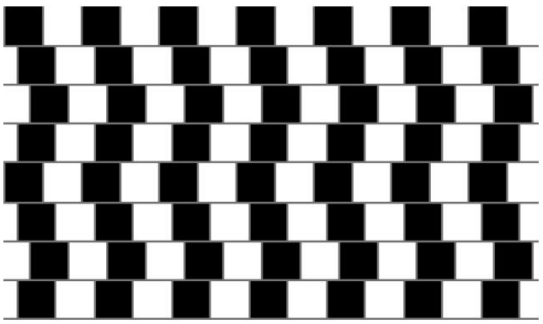
30 **Exercise 6: Psychophysics**

In this exercise, you have to modify the application from the previous exercise; you can reuse the general window frame code and parts of the UI and image display functionalities.
The application to be developed allows for psychophysics experimentation. Please look the two images below:



Count the black dots! :o)



Are the horizontal lines parallel or do they slope?

You are supposed to do the following:

1. Change the app such that only one image will be displayed.
2. Change the app such that you can select which of the two images above will be produced.
3. Change the app such that each of the above images will be displayed and that the geometrical parameters can be changed as follows:
   - For the left image, the length and width of the black rectangles, the width of the vertical grey bars and the height of the horizontal grea bars.
   - For the right image, the width of the black and the white rectangles, their height, the height (width) of the grey lines used for separation, and the offset between the horizontal ßebra"bars.
4. Change the app such that the three colors of the images can be changed and freely selected.

With the final application, perform the following experiments:

1. Initially, use black, grey, and white as in the original images. Vary the geometrical parameters and check, whether the visual effects will remain or vanish.
2. Then change the colors and choose two colors to replace black and white. Replace grey with the arithmetic mean of your two chosen colors. Is the visual effect still there? Try with at least three different color pairs.
3. Test for the initial color values, what the effect is of changing grey more to the white or more to the black. Does the visual effect remain visible, or does it become weaker or stronger? Repeat with other color choices!
4. Write a one-page text (possible complemented with printed images on the following pages) which summarizes your findings.