Korrelationsmesstechnik - Task 2

$$x = (2, 3, -2, 4, 5, -11), y = (4, 5, -11, 2, 3, 4)$$
$$xcorr(x, y) = (8, 18, 5, 6, 5, 24, -65, -65, 162, -35, -44)$$

$$x = (1, 1, 1, 1, 1, 1), y = (3, 0, -3, 0, -3, 0)$$
$$xcorr(x, y) = (0, -3, -3, -6, -6, -3, -3, 0, 0, 3, 3)$$

$$x = (0, 2, 2, 0, 0, 0, 2, 2, 0)$$
$$autocorr(x) = (0, 0, 4, 8, 4, 0, 0, 8, 16, 8, 0, 0, 4, 8, 4, 0, 0)$$

$$x = (0, 2, 0, 2, 0, 0, 2, 0), y = (2, 0, 2, 0, 2, 0, 2, 0)$$
$$xcorr(x, y) = (0, 0, 4, 0, 8, 0, 8, 4, 8, 4, 4, 4, 0, 4, 0)$$

Stichproben - Task 1

Mittelwerte und Varianzen

x Mittelwert: 5.1416666667, x Standardabweichung: 3.084995457.
y Mittelwert: 2.5708333333, y Standardabweichung: 1.56036976

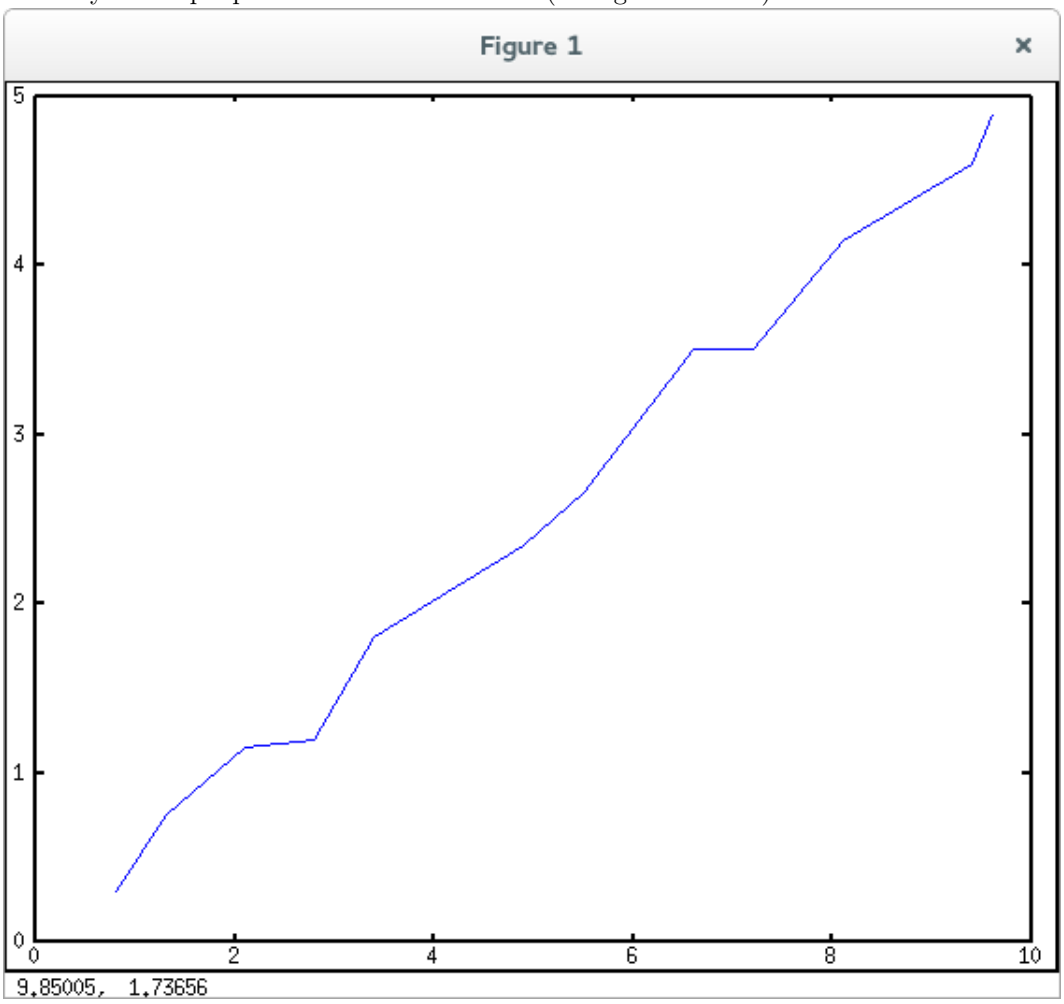
Covariance Matrix

$$\begin{pmatrix} 9.5172 & 4.7977 \\ 4.7977 & 2.4348 \end{pmatrix}$$

Correlation Coefficient

$$corr(x, y) = 0.99667$$

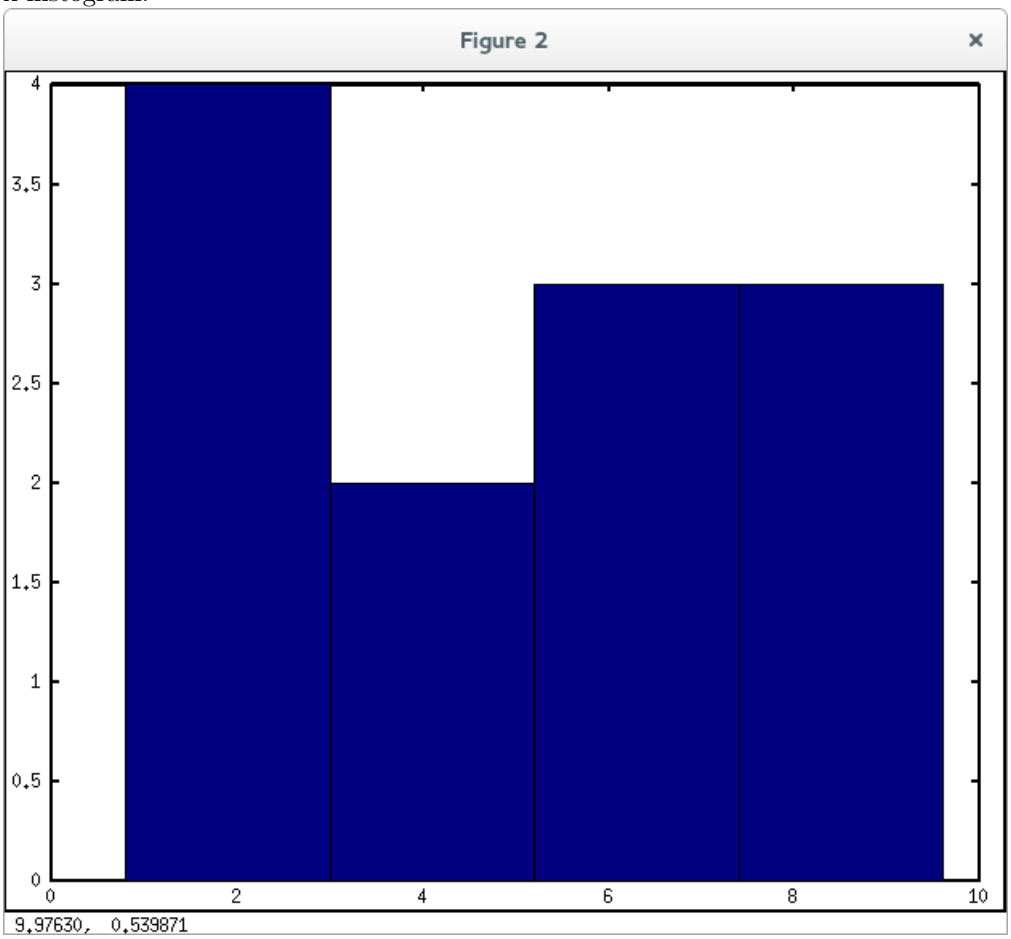
The correlation coefficient suggests high correlation of the values, approaching linearity. A simple plot visualizes this further (see figure 1 below).



Histograms

After playing around a bit histograms with 4 bins seem to make most sense.

x histogram:



y histogram: