

### Exercise Sheet 9

#### Exercise 33 Method of Least Squares/Regression

Determine a best fit line  $y = a + bx$  (regression line) for the data set already considered in exercise 10, that is, for

$x$	0	1	1	2	3	3	4	5	5	6
$y$	0	1	2	3	2	3	4	4	6	5

- using the covariance and the variances/standard deviations  
(see the lecture slides, section on correlation coefficients)
- using the method of least squares/the system of normal equations!

Draw a diagram of the data points and the regression line!

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#### Exercise 34 Method of Least Squares/Regression

Determine a best fit parabola  $y = a + bx + cx^2$  (regression parabola) for the data set  $(x, y) = ((0, 0), (2, 1), (3, 2), (4, 4))$  with the method of least squares and draw this parabola!

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#### Exercise 35 Multilinear Regression

Determine a best fit plane  $z = a + bx + cy$  for the following data set with the method of least squares:  $(x, y, z) = ((0, 1, 0), (0, 4, 2), (2, 0, 1), (3, 1, 2), (2, 3, 3), (4, 4, 4))$ .