Linear Regression – Exercise 1

The Chocolate Bar

You are working for a high-end chocolate manufacturer and are considering the launch of a new very high-end chocolate bar. To decide on the ideal selling price, you have conducted an experiment in 6 stores and offered the new product for different prices for the same two weeks. You can find the number of products sold in the table on the right side.

Store	Price (€)	Units sold
1	20	0
2	16	3
3	15	7
4	16	4
5	13	6
6	10	10

a) Draw a scatter plot showing this data

b) Compute the simple linear regression line (i.e. the parameters b_0 and b_1)

c) Add the regression line to the scatter plot

d) Compute the Coefficient of Determination

e) Assume you have fixed costs of 2.000 € per year and variable costs (incl. everything, even tax) per chocolate bar of 9 €.
   * What price do you expect to generate the highest profit?
   * How many bars do you expect to be selling per year in all 6 stores combined?
   * What will your yearly revenue be?
   * What will your yearly profit be?

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