Applied Statistical Methods - Exercise 1

2022-02-25

Problem 1: Regression Analysis

The following dataset on body weight and on futher observations on a number of animals is given.

Animal	Breast Circumference	Body Weight	BCS	HEI
1	176	471	5.0	161
2	177	463	4.2	121
3	178	481	4.9	157
4	179	470	3.0	165
5	179	496	6.8	136
6	180	491	4.9	123
7	181	518	4.4	163
8	182	511	4.4	149
9	183	510	3.5	143
10	184	541	4.7	130

The data can be read from https://charlotte-ngs.github.io/asmss2022/data/asm_bw_mult_reg.csv. The additional columns contain data on body condition score (BCS) and height (HEI).

Tasks

- Build a regression model of body weight on the other observations using the dataset given above.
- Set up the matrix $\mathbf{X}$ and the vectors $\mathbf{y}$, $\mathbf{b}$ and $\mathbf{e}$.
- Compute estimate for the regression coefficients in the model defined above.

Problem 2

Use the same dataset as in Problem 1 and verify your results using the function `lm()` in R.