Tutorial n$^{\text{o}}$ 2

Exercise 1. *Cholesterol*
The following tables sum up the cholesterol rate and the age for women for two samples, one drawn in the North of France, the other drawn in the South of France.

North of France

Age	46	52	39	65	54	33	49	76	71	41	58
Choles.	181	228	182	249	259	201	121	339	224	112	189

South of France

Age	18	44	33	78	51	43	44	58	63	56
Choles.	137	173	177	241	225	223	190	257	337	197
Age	19	42	30	47	58	70	67	31	21	
Choles.	137	173	177	241	225	223	190	257	337	

1. Is there an association between the two variables age and cholesterol ?
2. Can you use linear regression in order to depict the association between age and cholesterol ? Comment your results.

Exercise 2. *Duration of activity*

The duration of activities of three different chemicals are to be compared. We randomly choose a sample of every kind of chemicals and write down the duration of activity. The results are summed up in the following table :

Chemical	A	B	C
Duration of activity	73 64 67 62 70	84 80 81 77	82 79 71 75

1. Describe the dataset using summary statistics. Plot the duration of activity using histograms and boxplots.

2. What do you think of these results ?

Exercise 3. *Coleoptera*

We compare three species of "altises Haltica" (small coleopteras) :
– Haltica Oleracea,
– Haltica Carduorum
– Haltica Ficta.

The issue is to know whether the mean length of the elytres are equal or not.
The length, in μm, of the elytres of eight randomly chosen "altises Haltica" were measures for any of the three varities of "alrises". The results were summed up in the following table.

	Haltica Oleracea	Haltica Carduorum	Haltica Ficta
1	22	35	43
2	25	46	59
3	33	48	67
4	47	55	69
5	53	56	70
6	57	78	71
7	58	82	75
8	64	87	77

Are the lengths equal for a test level of 5 % ? If the lenghts are not equal, compare these.