TD02

Exercise No. 1

A study on computer equipment suppliers was conducted to evaluate their service, quality, and price. An expert rated these companies using scores ranging from -3 to 3. The results are presented as follows:

Company	Service	Quality	Price
E1	-2	3	-1
E2	-1	1	0
E3	2	-1	-1
E4	1	-3	2

1. Calculate the **mean vector** for each variable. What do you conclude?
2. Compute the **variance** of x^1. What does this value represent?
3. Determine the **covariance** between x^1 and x^2.
4. Compute the **correlation matrix** for the three variables.

Exercise 2

The following table presents data for different cities, including precipitation p (in cm), maximum temperature tmax, and minimum temperature tmin (in °C), measured in 2012:

a. Calculate the **means** and **standard deviations** of **p**, **tmax**, and **tmin**.
Provide the **X matrix** of standardized data (centered and reduced values).

b. Compute the **correlation matrix**.

City	p (cm)	tmax (°C)	tmin (°C)
Ajaccio	12.04	23.7	5.9
Brest	17.18	15.5	-1.8
Dunkerque	11.83	13.1	2.8
Nancy	6.23	13.5	-2.4
Nice	16.99	21.1	7.2

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