Exercice 1 *Consider the number of days taken by a courier company to deliver 100 packages, as given in the following table.*

No. days	1	2	3	4	5	6
No. packages	10	40	25	14	8	3

(1) define Ω, the type of the variable X.
(2) Make a frequency table displaying x_i, n_i, f_i, n_i^{cum}, f_i^{cum}, $n_i * x_i$, $n_i * x_i^2$.
(3) Construct the frequency bar graph.
(4) Give the cumulative distribution function (CDF) F_X and construct its graph.
(5) Calculate the mode Mo, median Me, sample mean $\bar{x}$, sample variance $Var(X)$ and standard deviation σ.
(6) Deduce the percentage of packages taking at most 2 days, and the percentage of packages taking at least 4 days.

Exercice 2 *The percentage scores of 40 candidates who took a Health and Safety test are given.*
$77, 44, 65, 84, 52, 60, 35, 83, 68, 65, 57, 60, 50, 93, 38, 46, 55, 45, 69, 61, 64, 40, 66, 91, 59, 61,$
$74, 70, 75, 42, 65, 85, 63, 73, 84, 68, 30, 40, 35, 65.$
(1) define Ω, the statistical variable X and its type.
(2) Make a frequency table displaying class intervals (consider k:number of class intervals equal to 7), frequencies, relative frequencies, and cumulative frequencies.
(3) Construct a frequency histogram.
(4) Calculate the mode Mo, sample mean $\bar{x}$, sample variance $Var(X)$ and standard deviation σ.
(5) Give the cumulative distribution function (CDF) F_X and construct its graph.
(6) Calculate the median Me.

Exercice 3 *A hotel has 120 rooms. The table summarises information about the number of rooms occupied each day for a period of 200 days.(dans un hotel il y a 120 chambres, le tableau ci dessous résume les données sur le nombre de chambres occupées sur une période de 200 jours)*

Number of rooms occupied	[0, 20[	[20, 40[	[40, 60[	[60, 80[	[80, 100[	[100, 120]
Frequency	10	32	62	50	28	18

1) Determine the population, variable X, sample size, range.
2) Construct a frequency table displaying class, c_i (the class mark), n_i, , f_i, f_i^{cum}, $n_i * c_i$, $n_i * c_i^2$.
3) Estimate the average number of rooms occupied $\bar{x}$, variance, standard deviation.
4) What is the highest number of rooms occupied during the 200 days?
5) Write the expression of the CDF F_X on the interval $[20, 40[$ and deduce the number of days when more than 30 rooms were occupied.

Exercice 4 *The daily journal times for 80 bank staff to get to work (le temps mis par les 80 employés d'une banque pour se rendre au travail) are given in the following table*

Times (minutes)	[0, 5[	[5, 10[	[10, 15[	[15, 20[	[20, 25[	[25, 30[	[30, 35]
n_i^{cum} (cumulative frequency)	3	11	24	56	68	76	80

(1) Draw the cumulative graph.
(2) How many staff take between 10 and 30 minutes to get to work?
(3) Complete the frequency table below

class	c_i	n_i	f_i	$n_i * c_i$

(4) Calculate the mean, mode, median.

Exercice 5 *A university investigated how much space on its computers hard drives is used for data storage. The results are shown below. It is given that 40 hard drives uses less than 20 GB.*
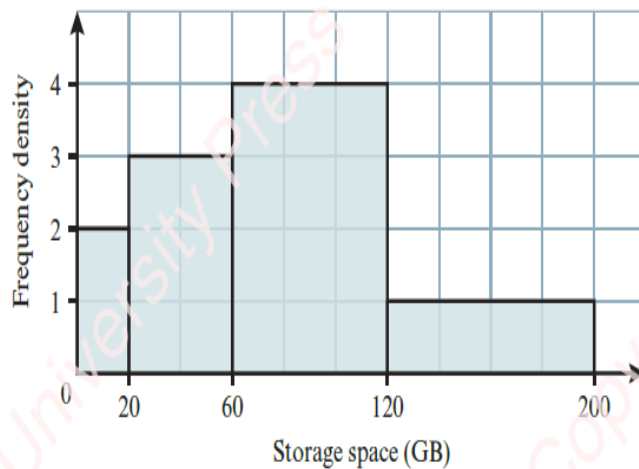
Given that $Frequency\ density = \frac{Frequency}{widthclass}$,
(1) Find the total number of hard drives represented.
(2) Calculate and estimate of the number of hard drives that use less than 50 GB.
(3) Estimate the value ok k, if 25% of the hard drives uses k GB or more.

Exercice 6 *Students investigated the prices of 1 litre bottles of a certain drink at 24 shops in a town and 16 shops in surrounding villages. Denoting th town prices by t and the village prices by ν, the student dataare summarised by the totals, $\sum(t-1.1) = 1.44$ and $\sum(\nu - 1.2) = 0.56$.*
Find the mean price of 1 litre of this drink at all the shops at which the students collected their data.