

Revision exercises

Exercise #1

Write an algorithm that displays the time every 10 minutes from a time entered by the user (the time is in hours and minutes)

Exercise #2

Write an algorithm to calculate the n^{th} term of the Fibonacci sequence defined by:

$$u(n) = \begin{cases} 0 & \text{if } n = 0 \\ 1 & \text{if } n = 1 \\ u(n-2) + u(n-1), & \text{if } n > 1 \end{cases}$$

Using as a vector where each element $t[i]$ of the vector represents the term $U(i)$ of this sequence

Exercise #3

We want to save information about each day of the massacres committed in Gaza in a vector.

The information for each day is: the date, the number of martyrs, the number of children among them, and the number of women among them.

Write an algorithm that reads this information from the beginning of the Al-Aqsa Flood and then calculates:

- Percentage of children among martyrs
- The day on which the largest number of martyrs was recorded

Exercise #4

Write an algorithm that reads two positive integers a and b and constructs an integer C which is the concatenation of a and b .

Example $a=23, b=596 \rightarrow c= 23569$

Exercise #5

Write a C program algorithm which reads a vector T of N integers (N entered by the user) and reads an integer C ($C \geq 2$) then arranges the elements of the table T in a matrix MAT of C columns. The rest of the empty cells in the matrix T (if they exist) are set to zero.

Example :

$N=10$

T

5	2	4	9	17	1	12	3	-1	7
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$C=3$

The number of lines will be 4: $L = 4$

MAT

5	2	4
9	17	1
12	3	-1
7	0	0

Exercise #6

We want to record the data from the faculty's laboratories in a vector:

Each lab is defined by: number of room; number of PCs; department that uses it ('m':math; 'i': info); number of corrupt PCs.

Write an algorithm that reads data from each laboratory and displays rooms that have 3 or more corrupt PCs.

(The number of labs in the faculty is 22)