Lab 6 : Pointers - suite-

Exercise 6:

1. Provide a C function *fill_Vec()* that fills a vector of N elements with random integers less than 100. Use the rand() function to generate random numbers:

srand(time(NULL)) ; // use only once to initialize the random number generator

rand() % 100 ; //to generate a random number less than 100.

2. Provide a function *split()* that takes as input a vector T of N integers and creates two other vectors, one containing the even numbers of T and the other containing the odd numbers of T.

3. Provide a function *display()* to display a vector T of N integers.

4. Use the *fill_Vec()* and split() functions in a main program to create a vector V of N integers (N is given by the user) and create the V1 vector of even integers and the V2 vector of odd integers. The vectors must be just the right size. Use *display()* to display the different vectors.

Example program output (the value in bold is the value entered by the user):

```
give the number of elements of the array: 12
The generated array is : 12  67  51  13  22  39  88  91  16  1  77  42
The array of evens : 12  22  88  16  42
The array of odds : 67  51  13  39  91  1  77
```

Exercise 7:

We want to manage the grades of a class. Write a program that:

1. Asks the user to enter the number of students and the number of subjects.
2. Asks for the input of the coefficients of the subjects. The coefficient must be between 1 and 5.
3. Asks for the input of the grades. The grade must be between 0 and 20.
4. Calculates the average of the grades for each student, taking into account the coefficients.
5. Calculates the class average and calculates the percentage of students who have an average higher than the class average.

Use a function for each of the previous instructions.

Remark: For instructions 2 and 3, the program must take into account the conditions on the coefficients and the grades, respectively. If the input data does not meet the condition, the program must repeat the request.

Example of the output :

```
give the number of students: 2
give the number of marks: 3
      give the coefficient of mark 1:  2
      give the coefficient of mark 1:  1
      give the coefficient of mark 1:  4

give the marks for the student 1:
      mark 1: 12
      mark 2: 14
      mark 3: 13

give the marks for the student 2:
      mark 1: 14
      mark 2: 15
      mark 3: 10
| student | mark1 | mark2 | mark3 | grafe
| --------| -------- | ------- | ------- | -------
|    1    |  12.00  |  14.00 |  13.00 | 12.86
| --------| -------- | ------- | ------- | -------
|    2    |  14.00  |  14.00 |  13.00 | 12.86
```