# VI. TABLES, TEXT FILES AND STRUCTURE

## A. Pointers

**Objective :** To understand pointers.

**Exercise 6A.1**

a) Write a function that exchange the values of 2 variables by using Call-By-Value.
b) Write a function that exchange the values of 2 variables by using Call-By-Reference.

**Exercise 6A.2**

Give line by line, and block by block explanation of the example **fig07_24** of the course.

**Exercise 6A.3**

What this program do ? Explain it.

```c
#include <stdio.h>
int mystery2( const char *s );
int main()
{  char string[ 80 ];
   printf( "Enter a string: ");
   scanf( "%s", string );
   printf( "%d\n", mystery2( string ) );
   return 0;}

int mystery2( const char *s )
{  int x;
   for ( x = 0; *s != '\0'; s++ )
      x++;
   return x;}
```

## B. Charging Data of integers from a file

**Objectives :**

The goal of this practical work is to understand charging data into program from a file. Example charging text files into memory using pointers and other.

**Exercise 6B.1**

Create a file NAME, write inside integer numbers separated by space. And finally save the file in the format `.txt` . Example : `NAME.txt`

**Exercise 6B.2**

By using `FILE *fp;` we declare a pointer to a file.
By using `fp=fopen("/file-address/filename.txt","r");` you can open the file `.txt` with read mode. Write a program that read a file `.txt` file. PS : plan an ERROR case if the file doesn't exist with `if(fp==NULL)`

**Exercise 6B.3**

Write a program that after reading the file `.txt` charge the integer inside the file in a table. And print the data of the table.

### C. Structure

**Objectives :** The goal of this practical work is to initialize our knowledge about structure. What is structure, how to declare it and how we use it.

**Explanation**

Structure is a new type of data were we can stock different data but
**THE IMPORTANT point** is that these data can be from different types but related under the same name.
example below :

```
struct point {
                float x,y; /* 3 fields x, y, z */
                int z; /* we declare fields as variables*/
                };
```

Inside the program, we can declare a variable type structure using
`struct point P` which has 3 fields.
`P.x, P.y` and `P.z`

**The problem**

A company sell electronic component of 4 types :

| | |
|---|---|
| Motherboard | code 1 |
| Processor | code 2 |
| Hard-disk | code 3 |
| Graphic | code 4 |

Use type `char` for the codes.
Each product has a reference (integer number), a price in euros and stock quantity.

**Exercise 6C.1**

Define a structure `Product` that code a product.

**Exercise 6C.2**

Write a function `getProduct` and `showProduct` that register and show data of a product.

**Exercise 6C.3**

Write a function that allow a user to order a command of a product. The user enter quantity of the command and one data about product. Computer show all data of the command, specially the price.