



Academic year: 2023-2024

Level: 1<sup>st</sup> year “Computer Science & Mathematics”

Module: Algorithmic and Data Structures 2

TP n°9

**Pedagogic objectives**

- Handle custom types in C language, in terms of declaration and processing.
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**Exercise n°1:**

Write a C program that defines three structures Point (fields: X and Y), Circle (Fields: X, Y, R) and Rectangle (Log, Lag). The program must read and display the respective fields of the Point, Circle and Rectangle structure type variables (point p1, circles c1, rectangles R1).

**Exercise n°2:**

An industrial carpentry manages a stock of wooden panels. Each panel has a width, length and thickness in millimeters, as well as the type of wood which can be pine (code 0), oak (code 1) or beech (code 2).

1. Define a panel record containing all the information relating to a wooden panel;
2. Write a C program that allows you to
  - enter and display a wood panel (numeric entry for the type of wood (eg: 0), display in characters of the type of wood (eg: pine);
  - Calculate the volume of a panel ((thickness\*width\*length)/10<sup>9</sup>).

### **Exercise n° 3:**

Consider the following structures (records):

- Date defined by the three fields: day, month and year;
- Address defined by the fields: Number, Street, Municipality, Wilaya, Postal Code;
- Employee defined by the fields: LastName, FirstName, Residence, DateBirth

Write a C program that allows you to enter employee information from the keyboard and check:

- whether an employee was born before a given year;
- if an employee resides in a given wilaya.