INSTITUTO POLITÉCNICO DE BRAGANÇA
Escola Superior de Tecnologia e Gestão

Engineering Informatic
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Delivery date (deadline): 28/05/2021

# MEDICAL CLINIC

A Medical Clinic urgently needs a small application that allows us to manage the register of patient's appointments. To each patient appointment, who is registered, several medical exams may be associated. The appointments and the exams are services provided by the Clinic, which are characterized with an identification code (ID), the date of the appointment and its cost. Additionally, each appointment should include a short text with its diagnosis, and each exam in which typology fits: Clinical Analysis, Imaging or Check-up. In the patient's record should only be included the patient's name and his identification number. Both the patient number and the service identification code must be sequential.

In addition to ensuring patient registration and appointments, the application should also allow medical exams to be added to existing appointments. The application should also be able to determine the total amount billed by the office and to show all the appointments of a given patient, presented all relevant data of each appointment, including the number of associated exams.

## Work to be developed

1. Start by modeling the problem, drawing the UML class diagram, and considering only the following classes: Clinic, Appointment, Patient, Exam and Service.
   (For the elaboration of the class diagram, you may use the Astah[1], the Visual Paradigm[2] or any other UML modeling tool that allows you to record the result in jpg, png or pdf format.)
2. Implement in C++ a solution to the problem enunciated and that is a faithful translation of the class diagram created.

## Considerations to be taken into consideration in the implementation

1. An console application should be developed in MS Visual Studio, version 2015 or later.
2. Include in the solution a small main that makes use of all the functionalities of the application.
3. Both the project and the solution, created in Visual Studio, should be called trabPOO, and be properly anonymized. If they contain any element that allows the authors to be identified (including in the class diagram), 1 point will be discounted to the classification.
4. Each class must be defined using two files, one with the declaration of the class (*.h) and the other with its implementation (*.cpp). Both files must have exactly the same name as the class.
5. When implementing the collections, they must use the template Colecao and/or ColecaoHibrida (available on ipb.virtual) and you are totally prohibited from changing anything of these templates.
6. In order to simplify implementation, the string class should be used for the date type.

## Generic considerations

1. The practical assigment shall be carried out by groups of 2 students.
2. Practical assigment carried out in previous years by repeat students will not be considered for the evaluation of this academic year.
3. Only practical assigments whose implementation does not present any compilation or linking error and with a minimum of perfectly operational functionalities will be accepted for evaluation.

[1] https://astah.net/products/free-student-license/
[2] https://www.visual-paradigm.com/solution/freeumltool/

4. Full or partial copying of code from other sources than the documentation provided by the teachers of the curricular unit is expressly prohibited.
5. Students may have to defend their work, in person or by videoconference, on a date to be scheduled by the teacher, in order to demonstrate the ability to implement the code, understand it and explain it.
6. For further questions and clarifications about the practical assignment, students should use the discussion forum created on the platform http://virtual.ipb.pt/: POO (20/2.4) > Fóruns > Trabalho Prático.
   (Given the large number of students enrolled, and for all to benefit from the clarifications that may be provided, no doubts will be asked related to the practical assignment by email.)

## Submission rules

1. The practical assignment shall be submitted only by one of the members of the group, on the e-learning portal (http://virtual.ipb.pt/, option Atividades), within the deadline. No practical assignments sent by email or other forms of submission will be accepted.
2. Two files should be submitted:
   - trabPOO.zip – compressed folder of Visual C++ solution, after deleted, if any, the extension files ".sdf", ".VC" e ".VC.db" (and any other auto-creation file that occupies a lot of space) and also the subfolders "Debug", "Release", "ipch", "x64" and ".vs" (attention that this last subfolder may be hidden);
     It is also within this folder (trabPOO.zip) that you should place the file with the class diagram, which should have the name of: diagramaDeClasses (with extension .jpg, .png or .pdf).
   - autores.txt – text file containing only the name and mechanographic number of the two authors of the practical assignment.
3. The practical assignment may only be submitted with a maximum delay of 1 day, in which case the subtraction of a point to its grade.