Object-oriented programming

# C++ PROJECT

A project on drugs and diseases

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# GENERAL DESCRIPTION

The aim of the project is to implementa drug cabinet program that records the drugs available at a pharmacy.

# CLASS HIERARCHY

1. Each student is tasked with defining her/his own **hierarchy of drugs**;
2. The drug hierarchy should consist of at least **7 classes** connected by relations of inheritance;
3. Each modeled class should have 1 or 2fields, so that he "leaf" classes of the hierarchy have **at least 3 fields**;
4. Each leaf class should have at least **one numeric and one character field**;
5. Classes that are not at the bottom of the hierarchy should be **abstract**;
6. **No parameterless constructors**; constructor parameters should mirror the classes' fields;
7. Each class should have a **toString()** method that provides text information about a given drug.
8. Before implementing the project, students are asked to prepare a **UML class diagram** of the modeled hierarchy by **October 16, 2020, 23:59 CET**.

# REQUIREMENTS

The project should include a generic (template) class called Cabinet (or the likes) that will be a collection of drugs. Adding a drug to the Cabinet should be performed by the "+=" and removing by the "-=" operator.

Students are asked to create a console application that does the following:

1. Creates a user-defined number of random drugs and adds them to the cabinet.
2. Lists all the drugs currently available in the cabinet (please use the implemented toString() method)
3. There should also be a separate class with the method pandemic() that for each drug in the cabinet:
    - with a user-definedprobability (pDisease) selects a drug and removes it from the cabinet;
    - with a user-defined probability (1 - pRecovery) automatically adds the drug back to the cabinet.
4. The program should run pandemic() in a loop until the cabinet becomes empty; the program should be convergent when pDisease > pRecovery.
5. After each iteration, the cabinet should list all the drugs.
6. Each class should be divided into two files: *.cpp and *.h (or *.hpp). The *.h files should contain declarations, whereas the *.cpp files should host the implementations.

# DEADLINE

Please send the code of your projects back to your lecturer by **November 13, 2020, 23:59 CET**.