

Technical Specification

The program is a console application used to generate quizzes for students and automatically grade and generate the evaluation at the end of the quiz.

Features :

The scope covered by this application is the following :

- Register users who could be either a teacher or a student (The users created are stored in a database)
- Logging in the users and based on the rights of the user give an appropriate menu.
- Operate CRUD on Open Questions and MCQ Questions (The questions created are stored in a database)
- Search questions (MCQ or Open) based on topics.
- Assemble automatically a quiz based on one or a list of topics that are available in the database.
- Run the evaluation and provide the automatic mark in the end of this execution.
- Export the quiz taken (questions, answers and grade) under a pdf.
- The database configuration is totally configurable from the outside using a properties file.

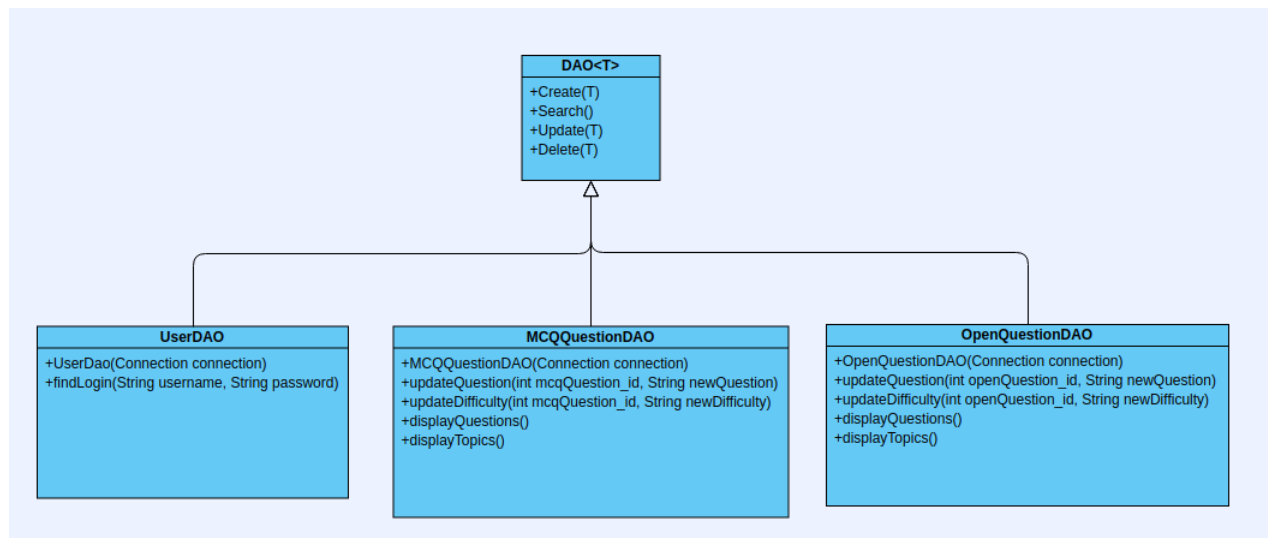
DAO :

The program uses a DAO in order to store the questions, choices for mcq questions and users in the database.

We use the DAO pattern which allows to make the link between the access layer and the application layer (the classes). It makes it easier to master the possible changes on the stocking system (changing from database to XML for example).

In order to profit of the polymorphism we create a generic abstract DAO class and make our classes inherit from it.

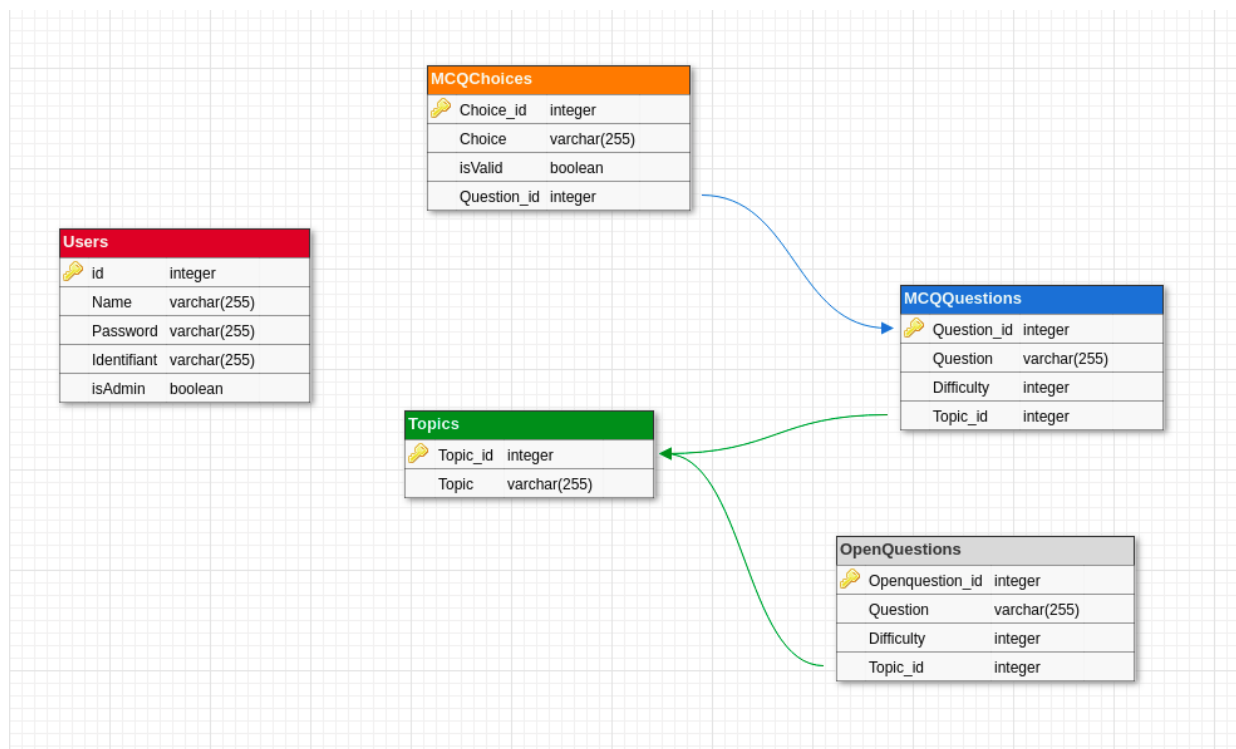
The following UML explains the architecture of the DAO :



Database :

The DAO stocks the useful information in a database. The database is based on the following architecture :

- The topics table has a one-to-many relationship with both MCQQuestions and OpenQuestions.
- The MCQQuestions table has a one-to-many relationship with the table MCChoices.



The UML of the program architecture is the following :

