V 4

Mini Project 1: SQL Databases

Objective

The objective of this assignment is practicing design, development, and implementation of relational databases in a business context.

Business Case

Your customer is a driving school, which offers driving practice and preparation for driving exam to individuals, older that 18.

The school has employed driving instructors, auto-technicians, and administrative staff to handle the large clients' interest.

Before starting the training, the clients must register and attend an interview, at which they book time for one-hour lessons with a particular instructor and particular car from the school's garage.

A minimum of 10 lessons is required.

At the end of the lessons, the instructor decides if the trainee is ready for the exam or needs more lessons.

When a trainee completes the training and gets a driving license, their database record is archived.

The company wants to keep track on their work, the safe conditions, and clients' success.

In addition, they need to be able to search and retrieve information, such as, but not limited to

- workload of a specific instructor during specific period
- list of trainees, who did not pass their test at the first attempt
- notification about a car scheduled for a technical check in the coming week

Task

You task is to design and develop a relational database, which meets the business rules and the requirements of the customer.

It includes

a) formulating specifications
b) creating appropriate data model
c) creating and populating the database with sufficient test data
d) programming the requested functionality in SQL
e) add constrains reflecting the business rules
f) add constrains ensuring referential integrity
g) keeping transactions ACID and protected against blocking and deadlocks
h) considering optimization of the queries
i) protecting the use of the database with user account management, and control of privileges.

Notes

It is a group project, developed entirely in SQL. No client application is required.

Your solution or link to it must be uploaded in Peergrade and presented in class, according the schedule.

The presentation includes demo examples that validate the database functionality described above.

The solution and presentation bring 30 credits. A self-reflection and feedback to other groups' solutions brings 5 additional credits.