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 company that specializes in IT training.

The company offers advanced technology courses, delivered in short period, limited to 12 weeks.

The company has employed 30 instructors and can handle enrollment of up to 100 trainees per training session.

Each course is taught by a teaching team of two or more instructors.

Each instructor is assigned to a maximum of two teaching teams.

A trainee can undertake only one course at a time, if the course requires presence, but may join up to three on-line courses at the same time.

The company wants to keep track on their work and connections to clients.

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

- names of graduates, completed a specific course
- most popular courses and current availability
- occupation of instructors during certain period

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.