Project Databases 1819: Assignment week 1

Project Databases is about the systematic and step-by-step development of a desktop application that uses a database. The database is a MSSQL (Microsoft Structured Query Language) database. The application is an administrative management tool for the Someren event in May 2019.

The first week starts with a reconnaissance assignment. There are 3 variants (A, B, C). Divide the variants A, B, C over the different team members. You need each other's effects to work on, but that does not mean that you have to wait for the other person continuously; identify what you need from your group members to be able to carry out your variant. Of course you can also cooperate, but only within your own group. Working together does not mean copying each other's work, but coming to new insights together!

*(GROUPS THAT CONSIST OF TWO STUDENTS MAKE VARIANT A + C).*

Eventually you upload one joint effort via the Assignment of week 1 on BB.

Joint reading: Layer structure

Work is being done in this application with a three layer structure (actually four) that already prepares for the project in 1.4. The application consists of a DAL / DB layer, Logica (Services) layer, Model layer and an UI layer.

These are four separate projects within 1 Visual Studio Solution that make use of each other.

So you will also regularly come across a call to another Project within the same Solution.
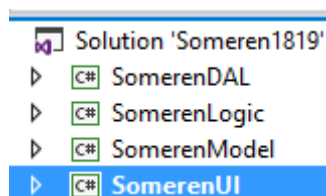
Variant A: - ERD

In this variant it is assumed that you have followed a number of Data Modeling (ERD) lessons.

In order to arrive at a correct database design, it is important that you first make an inventory of all required entities, relationships and attributes. To this end the following case has been written:

In May 2019 the entire first year (Dutch and International groups) of Informatica, both students and teachers, will go on a study trip to the village of Someren in North Brabant. There, introductory activities are organized during two days to get to know each other better, even outside the classroom . In the Someren program, it should be noted which Teachers, Students go with it, and in which Activities they participate (as participants or as supervisors). A room division must also be made of Rooms (student rooms, staff rooms).

In addition to the room layout, an overview must be made of all Activities (puzzle tour, football and obstacle course) that are organized on Tuesday morning . Students are involved in the activities as participants and teachers as supervisors.

On Monday evening there is a disco with bar service where students can buy (and buy) alcoholic beverages at the expense of vouchers . On request there is even a karaoke session ("ABBA - Dancing Queen") with one of the cents Databases / Datamod elleren. The stock records are kept in the database, as well as the sales prices and the name of the drinks. At the moment a drink is ordered, the checkout screen is kept. The VAT (9% on non-alcoholic and 21% on alcoholic) and turnover is calculated and stored so that the tax return can be made later .

The ERD / database will be further supplemented in the coming weeks, but for now this basis is sufficient as a starting point.

Design an Entity Relationship Diagram using the above case in preparation for variant B.

Variant B: - Relational database model

In this variant it is assumed that you have followed a number of Data Modeling (ERD) lessons.

Design a relational textual database model on the basis of the ERD that is prepared in variant A. Use the following conversion rules:

2 conditions:

1.   **Give each entity type and relationship type a unique name (except is_a).**

2.   **All entity types have a primary slot.**

5 conversion rules:

1.   **n-to-m relationship: convert to three tables: relationship table contains attribute types of the relationship and reference keys to both entity types**

2.   **N-op-1 or 1-to-n relation: entity on the 1-side contains attribute types of the relation + referential key to n-side**

3.   **1-to-1 relation: the relationship type does not become a separate table, one of the entity types contains the attribute types of the relation + a referral key to the other table**

4.   **If the table with a referral key has a total stake in a relation, the referral key must be filled in that table.**

5.   **When a table is a total participant in a relationship, all key values must occur at least once as the value of the referral key in the other table**
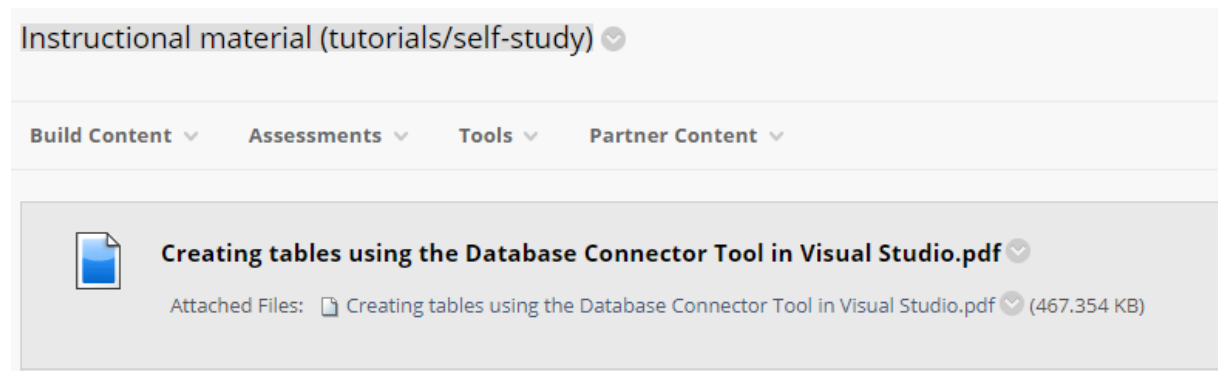
Variant C: - DB device + DB connection

Variant C can only be started when variant A and B are finished! Agree well with each other.

In the File Exchange of your group on Blackboard you will find the Database data for an empty, clean database for your group. This database can be set up using the relational model from variant B.

On Blackboard there is an instruction to open the database from Visual Studio. The tutorial can be found on Blackboard in the 'Instructional material' folder:

Rounding up

Copy the database connection from variant C to everyone's individual solution so that you can continue working individually from next week onwards from the jointly working database