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Database Concepts

Exercise 4

1. Use SQL to create a relation for football players! Football players have a first and a last name, a birth date, a shirt number and a position, where they are playing. The position is restricted to following values: Goalkeeper, defence, forwards and midfield. Prepare two different solutions to check the value domain of the position attribute.

2. Add the following entries to the example tables from the appendix using SQL:

   (a) The Johannishof Winery settled in the area Rheingau, which is in the Hessen region.

   (b) Add the wine Merlot to the database. It is a wine from the year 2009, which was produced in the winery from the region South Australia. The default color will be used.

3. Formulate the following operations in SQL for the sample database in the appendix.

   (a) Update all red wines by increasing their vintage by 1 year.

   (b) Empty the table wine.

   (c) Delete the entire table producer.

Prepare an entity-relationship schema for the following scenarios.

4. Your task is to design a database about software products. Every software product has a name, a version number, a price and is created by a software company. It must be possible to store different versions of a software product. Additionally, some software products require other software products to run (e.g., Oracle8i requires Java). Thereby, a software product can be required by more than one other software product or not at all.

   Prepare an entity-relationship schema of the requested database about software products!

5. The government needs a database about universities and their faculties. A university has a unique name, an address and a number of enrolled students. Moreover, every university has at least two faculties. Thereby, faculties belong to exactly one university. Within one university, faculties are uniquely identified by their name. That means, faculties of different universities can have the same name. Additionally, for every faculty the name of the faculty's head must be stored.

   Prepare an entity-relationship schema of the requested database about universities!

Appendix:

Attention: The following figure is taken from the book "'Datenbanken. Konzepte & Sprachen"' (5th edition). Thus, the book's copyright applies also to the figure.

WINE

name	color	year	vineyard
La Rose Grand Cru	red	1998	Château La Rose
Creek Shiraz	red	2003	Creek
Zinfandel	red	2004	Helena
Pinot Noir	red	2001	Creek
Merlot	red	1999	Helena
Riesling Reserve	white	1999	Müller
Chardonnay	white	2002	Bighorn

PRODUCER

vineyard	area	region
Creek	Barossa Valley	South Australia
Helena	Napa Valley	Kalifornien
Château La Rose	Saint-Emilion	Bordeaux
Château La Pointe	Pomerol	Bordeaux
Müller	Rheingau	Hessen
Bighorn	Santa Barbara	Kalifornien

Figure 1: Example database relations

Good Luck!