

## Practical 1 - Basic Terms and Concepts

### 1. Basic Terms

Software engineer Myers working for the company PlusSoft describes a system currently in development as follows:

The customer relationship management system CRMPlus will help our customers in companies A, B, and C to manage their customer organizations, contact persons, addresses, and phone numbers. It will help them to keep track of each actual contact either personal or by phone. The system was developed using Oracle 10g making heavy usage of its object-relational features. Furthermore, we used the Oracle Designer supporting Entity Relationship modeling for early development stages. Because the application was developed using Java Technology, we use the Hibernate Middleware as a mapping layer between application and database.

How do the terms used in this statement relate to basic terms introduced in the lecture, e.g. data model, database model, database schema, database, database system, database management system, etc.?

### 2. Database and Application Development

A simple database solution has to be developed for the following scenario:

*A CD library database is used to manage any number of CDs (title, label, year). A CD may either be by one artist (artist name, country, year of birth) or by one band (band name, country, members) for all the tracks (song title, duration) or otherwise may be a sampler, where each track is by an individual artist. The database is accessed mainly by searches on the names of bands or artists, song titles, or CD titles.*

Go through the phases of database design, i.e.

- Conceptual design (using ER),
- Logical design (using RM),
- Data definition (using SQL), and
- Physical design (using SQL).

What changes would the usage of other models or languages imply? How would the data structures be for a Java application managing the same objects transiently.